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MOTOR BOATING



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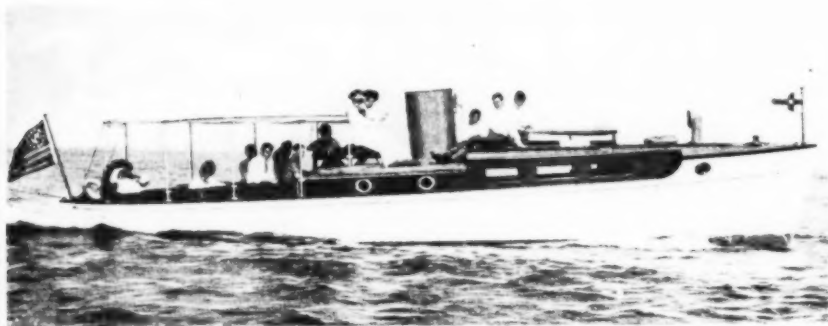
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Green Bay, Wis., Jan. 14, 1911.

George E. Hughes,
Kearney, N. J.

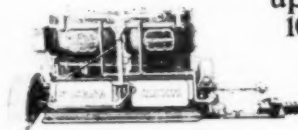
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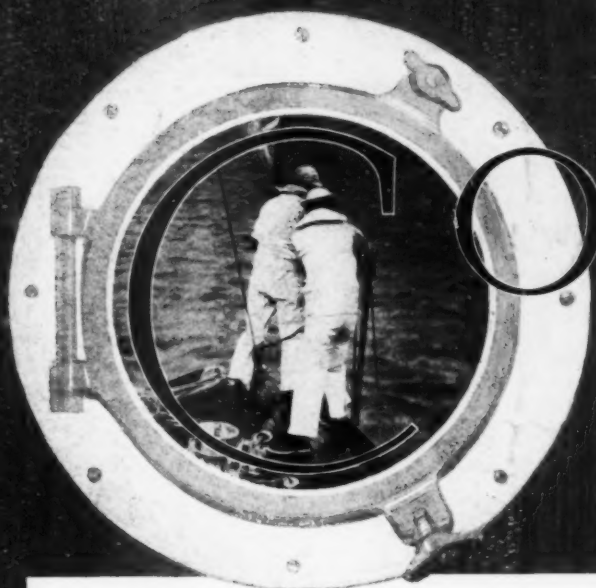
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1000"**



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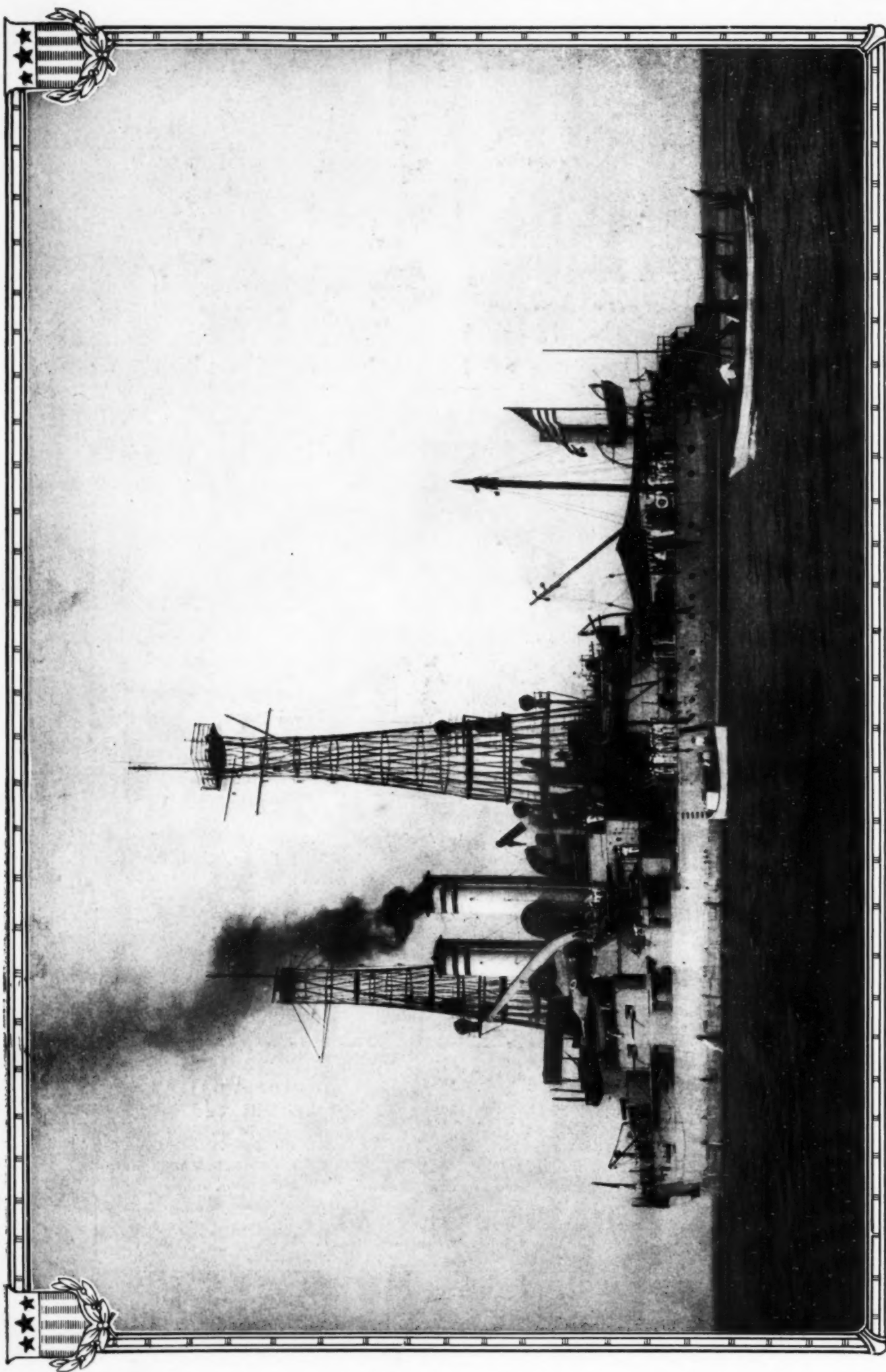
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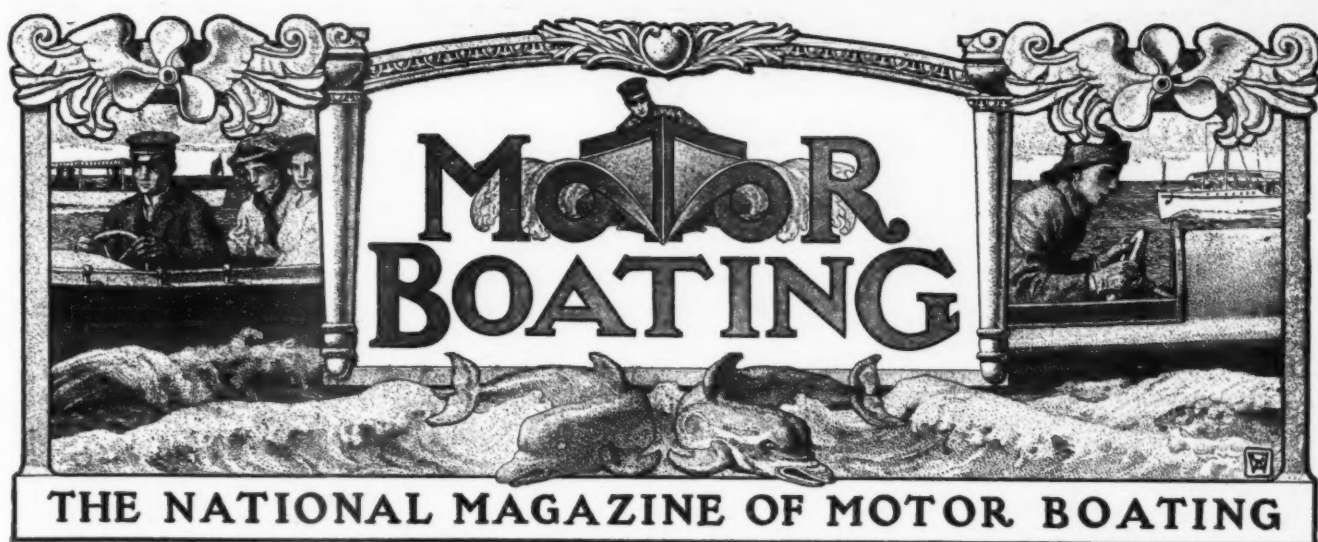
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Photograph by Edwin Levick.

Gentlemen.—The Fleet! Some day, perhaps, if we haven't outgrown our love for battleships by that time, these bulldogs of the sea may be propelled by internal combustion engines of the Diesel type.



The Wherefore of the Hydro.

A Simple Explanation of the Hydroplane Principle and Its Part in the Attainment of High Speeds. Some Conclusions From the Model Tests of Dixie IV.

By Clinton H. Crane.

As the designer of the Dixies, Mr. Crane needs no introduction to the readers of MoToR Boating. His experiments with the models upon which he based the design of Dixie IV and his later experience with the performance of this boat, together with that of the former Dixies, makes him particularly capable of discussing the relative advantages of the hydroplane and displacement types. The article explains simply, in non-technical language, the necessity of the hydroplane for high speeds.—Editor.

THIS has been a hydroplane year in America, so far as the racing game is concerned, and as we are going to talk considerably of hydroplanes, we may as well understand to begin with, what we mean by the term.

A hydroplane, strictly speaking, owes its support to the fact that it is passing through or over the water. The hydroplane which passes through the water has been successfully demonstrated by Mr. Cooper Hewitt, in this country, and by an Italian named Enrico Forlanini abroad. In both these cases the boat which acts as a float at rest, and at slow speeds, is borne entirely clear of the water, the support coming from a series of superimposed planes on four posts or struts. The faster the boat goes, the higher she comes out of water and the fewer planes that are actually submerged. Except for the difficulties of propelling such a contrivance, this would seem to offer the greatest possibility for extreme speed, and there is no fundamental reason why such a hydroplane, in smooth water, should not attain



At rest the monoplane is supported by its buoyancy.



At slow speed the bow starts to rise and the stern settles as a compensation, as the speed is not sufficient for planing.



The bow continues to rise until the center of pressure of the water on the hull comes under the center of weight.



The bow then tends to drop and the stern to rise, decreasing the angle of the bottom with the surface of the water.

speeds which are in excess of those of the aeroplane, and not very far short of those attained by the automobile.

Before such a result is obtained, however, a great deal of very careful experimentation is necessary, carried on at considerable risk and whether such a boat in ordinary racing would be a success is a question. Just how much the uneven surface of water, even as protected as that of Huntington Bay, would have on the speed, no one can definitely foretell.

The ordinary type of hydroplane, is a boat whose bottom is so shaped, that when the so-called planing point is reached, the water touches only this bottom, and the boat slides over the surface, very much as a toboggan slides over newly fallen snow.

I am not going to be technical, and talk about the law of squares and cubes, but, in order to make myself understood, I shall have to cite one or two concrete examples.

The upward pressure on the boat's bottom must equal the weight

of the boat. The pressure upward at forty miles an hour is four times as great as at twenty miles an hour, providing the angle of the boat's bottom is the same and no part of that bottom has been allowed to lift clear of the water. Think a minute what this means. Bearing in mind that the pressure upward must equal the boat's weight, either the boat at forty miles an hour is trimming less by the stern than at twenty, or, a large portion of the bottom has been lifted clear of the water. In actual practice, this lifting clear is what happens first.

If you will look at the simple diagram, which accompanies this article, and which is of an absolutely flat bottomed, square ended boat, trimming by the stern, you will see that at rest, in order that the boat shall trim by the stern, the center of weight of the boat and its equipment must be considerably aft of the fore and aft center of the boat itself. When this boat begins to move forward and the pressure on the bottom, the lifting pressure, takes the place of the buoyancy, the center of pressure of this lifting is bound to occur

than 40 ft. long, cannot be driven at anything like Dixie IV's speed, if we can believe the results of our experiments at Washington. Up to 29 miles an hour, Dixie I required less power than any of the subsequent models. From 29 to 32 Dixie II required less power than the Dixie I or than any subsequent model. Above 32 miles, a square bilged model which we tested showed distinctly less resistance than the model of Dixie I, or Dixie II. Perhaps you could still call this a displacement boat, but my own idea is that a displacement boat is one which relies to a large extent on displacement for support.

This square bilged model could not have relied very much on displacement, as the water did not touch the sides of the model at all when she was moving at speed. I really believe that *the use of the square corner or chine in the after part of the boat should be the true differentiation between the hydroplane and the displacement boat.*

I must emphasize the fact that these facts and the conclusions based thereon, apply to a boat 40 ft. long and of the



Dixie IV is a biplane. The forward plane is of bronze, and is fastened to the outside of the hull, materially strengthening the latter at its point of contact with the water. Mr. Crane found in his tank experiments that the biplane was not as efficient as the monoplane. For a large boat, however, it is more practical, as it allows greater stability without very materially increasing the wetted surface.

forward of the center of weight. As a matter of fact, it occurs very much forward of the center of weight, and the boat's bow lifts clear of the water. This lifting will continue until the center of pressure comes directly under the center of weight. When this point has been reached the bow can no longer lift, and as the boat goes faster, the only way the increased pressure can be taken care of is by a reduction of the angle, in other words, at some time the stern will begin to lift in any type of hydroplane. This is a fundamental law, and we have found in practice that all the models which we towed in the Washington Tank followed this law.

The actual point of speed at which the stern began to lift varied with each particular shape of bottom. The supporting surface of the bottom can be either in a perfectly fair and unbroken surface from bow to stern, which we shall call a monoplane, or, can be divided into any number of stepped surfaces, which we shall speak of as multiplanes.

At this point it may be well to consider the opinion which has been frequently expressed by naval architects of more or less prominence, that in an ordinary displacement hull it would be possible to equal the speeds of the hydroplanes. We have got to come to some agreement as to what we mean by a displacement hull. I suppose that the believers in this theory would claim all monoplanes as displacement boats.

In my opinion a displacement type of boat, for high speed, as usually considered, is long and narrow, with rounding bilges and a more or less flat stern. A boat of this type, not more

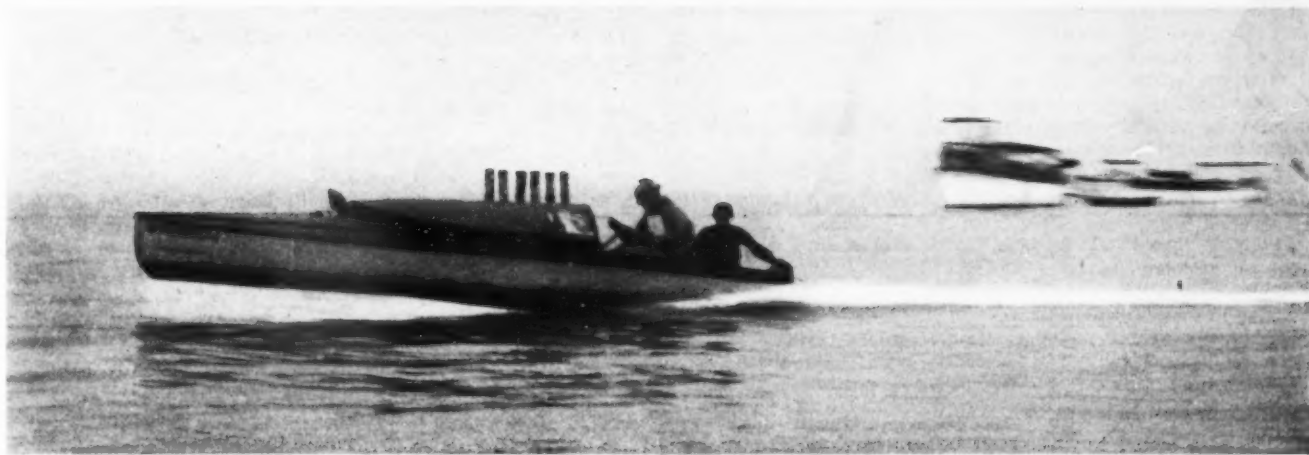
speeds noted. There is no doubt that the advantages of the hydroplane for speed is confined to vessels of relatively small size, but just where the principle ceases to be of advantage, is a matter of opinion. My own is that for extreme speeds, a boat of 75 ft. is possible, perhaps even a little larger.

The wetted surface resistance, or friction resistance, is a very large part of the resistance in successful high speed boats.

In the model of Dixie I, at a speed corresponding to 30 miles an hour, the resistance due to friction was 8½ lbs., and that due to wave making, 9 lbs. In Dixie II, at a speed corresponding to 32 miles an hour, the resistance due to friction was 10 lbs., and to wave making, 18 lbs.

In the monoplane model which we have just been speaking of, and which had the same displacement as Dixies I and II, the friction resistance was 8 lbs. and the wave making 12 lbs. at the same speed. This great reduction in friction was due to the lifting clear of the water of a large portion of the frictional surface. The wetted surface in motion of Dixie II was about 108 sq. ft., and of this monoplane about 86 sq. ft. at this speed.

Another thing which makes me believe that wetted surface is of the very greatest importance in a hydroplane is the fact that the addition of very nearly 60 per cent. to the displacement of this model only increased the resistance by about 10 per cent. and the further fact that in a biplane model which we tried, decreasing the wetted surface to about 40 sq. ft. the resistance was still further decreased. The wave making of



Sand-Burr II is the season's most successful example of the monoplane. Her underbody is unique; the keel line is straight, but the sharp bilges starting above it forward, fall below about amidships, making the after-body actually concave athwartships. This accounts for the peculiar hogged appearance of the under-body and for the absence of spray so noticeable in the V-bottomed types.

these hydroplanes is very small, as anybody who has watched the races can see for himself.

The monoplane, like the sloop yacht, other things being equal, should show the greatest efficiency. The practical difficulty with getting the extreme speed out of a monoplane is owing to the very short fore and aft dimensions, which is necessary to support the boat at high speeds. A plane 5 ft. long and 6 ft. wide has ample surface to support the weight of Dixie IV at forty miles an hour. It would, however, be very difficult both to handle such a very short surface and bring it underneath the center of weight.

We found that the monoplane was sufficiently more efficient to allow us to increase the length of this supporting surface, but not to an extent which would compete with a biplane. By biplane I mean a boat with a single step. The efficiency of a multiplane is distinctly less than that of a biplane. So much for general consideration.

In designing a racing hydroplane, there are various details to be considered, which are of supreme importance. The racing must take place almost any day. Of course, no one is providing for extremely bad weather, but the average sea which accompanies the average wind must be considered. Consequently, the boat's bottom must be so shaped that the jar and pound of such a sea will not be excessive; the faster the boating the more serious is this consideration.

A little boat, of small power, is automatically slowed down when she encounters such a sea. This is one reason why the larger, high-powered boat wins. Theoretically, of course, speed in a hydroplane is entirely a matter of weight per horse-

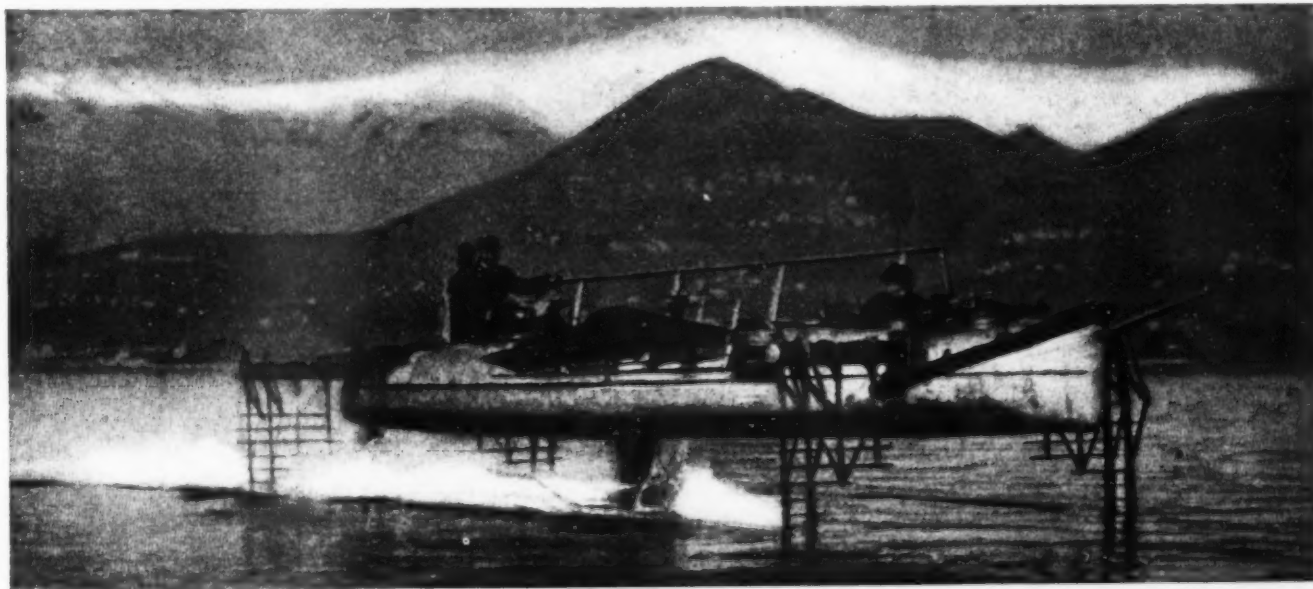
power, that is, a boat weighing twenty lbs. to the horsepower, theoretically should be faster than one weighing thirty pounds to the horsepower, irrespective of whether one has 800 and the other 80, or vice versa.

The resistance of struts and shafting is proportionately very great, but so far no method of propulsion, except the screw, seems to offer any great chance of success. In hydroplanes of small power it may be possible to use the method suggested by Mr. Hickman, the designer of the Viper, who advocated partially submerged propellers working behind the transom, but in a boat of large power the propellers become of prohibitive size.

There has been a good deal written this summer on the subject of reliability of various of the racing boats. There are certain inherent differences between racing and cruising, which make any racing machine more liable to breakdown than a cruising machine.

In any race, whether it is a motor boat race, or horse race, or rowing race, the loser, if he has courage, is bound to use every ounce of power and heart which he possesses. People do not call men unreliable because two or three oarsmen fall over in a faint at the end of a four-mile race, and a motor is not necessarily unreliable which goes wrong when driven beyond its breaking point.

Where the faster boat breaks down it is due to one of two causes, either she is not sufficiently faster to run well within herself, or else her engineers have not had sufficient experience to make them realize that enough speed to win is all that they should ask, and that to run the boat any faster is simply



This photograph of Sigñor Forlanini's hydroplane, reproduced from the February, 1911, issue of MoToR BoatinG, is probably the most comprehensive ever taken of a hydroplane of the separate plane type in action. The hull is supported when at speed entirely clear of the water, by the four shutter light group of planes, the blades of which decrease in size as they descend, so that at top speed the supporting area is very small. The propellor is just aft of the fin amidships, and is driven by a shaft and bevel gears from the motor above.

to place unnecessary strain on every part. Consider, it takes less than 300 h. p. to drive Dixie 40 miles an hour; it takes 550 h. p. to drive her 46 miles.

It seems to me that the breakdown of Pioneer falls under this heading. She was being beaten by a faster boat, and her crew very naturally and probably drove her to the limit of her powers, and possibly a shade beyond.

Most of the breakdowns this summer, however, have been due to the attempt which has been pretty generally made to take more duty out of material than that material is able to bear. The majority of the racing engines have not really been racing engines at all, simply cruising engines with larger carbureters, the material used being no better than in the ordinary type of cruising boat. The remarkable thing to me is that they were able to run as well as they did.

Of course, in building any racing machine, the designer wishes to make everything as light as possible, without the danger of breakdown. Just how light is a question of individual judgment. The use of the very best material is of prodigious assistance. Krupp steel, with a strength of 200,000 lbs. per square inch, can be used in

smaller sizes with more safety than ordinary machinery steel. The boat with the best material should win, if she is no better in any other particular.

There have been a number of remarkable boats built this year. The three American boats, outside of Dixie IV, which have attracted the greatest amount of attention, and deservedly so, are: Sand Burr, Reliance IV, and Hazel. Sand Burr is a monoplane, 20 ft. long, and has had it all her own way in the 20 ft. class; Reliance IV and Hazel are biplanes. There are many other boats which one might mention, but these three have appeared frequently in public competition, and have demonstrated their ability.

The most crying evil of the sport today is absolute lack of any sense of decency in the way speeds are exaggerated. There are two ways of breaking records; one by running over a course which is shorter than it is supposed to be, and the other by increasing the speed. The method of shortening the course has been adopted too frequently this summer. Committees have had the false notion that record-breaking advertised their meets and benefited the sport at large, but the point has been reached where nobody believes the published speeds.



Peter Cooper Hewitt in his glider. Mr. Hewitt was one of the first men in America to experiment with the hydroplane. His craft, like that of Signor Forlanini, was of the separate plane type and is shown before starting to plane. The planes are submerged and are arranged on the sturts, extending below the hull, like those of the Italian glider.

Racing Around Catalina Island.

How Skipper Joe Fellows' Experience Enables Him Single-Handed to Drive His 22-Footer, Campbell, to Victory in an Ocean Race of 80 Nautical Miles.

WITH the notable spread of interest and investment in power boating on the southern California coast, has come the corresponding support of the few racing classics as yet regularly scheduled, but of all of the racing so far done in these waters, none attracts so much interest and rivalry as the "eighty-knot" race around Catalina Island for the Garbutt perpetual trophy, in the hands of the South Coast Yacht Club.

Three times has this race been held, and three times has Joe Fellows, single handed, in his open, 22 ft. Campbell, 20 h. p. Campbell motor, won the trophy, and in each instance from higher powered and, usually, larger boats than the Campbell. There is no doubt that in these races the "personal equation" has more than counterbalanced any disadvantages that Fellows suffered from higher power or greater length owned by his adversaries.

A material fact, which has also added to the interest in the contests, is that each race has seen the time lowered for the course, until the record made on the 17th of September brings the elapsed time down to 5 hours and 5 minutes, while the time of the first race, held on June 11, was something more than five hours and a half. This last race between Fellows with Campbell, and the Ahren brothers, Carl and Ralph, with their Mary A, 26 ft. 20-45 Sterling motor, had been looked forward to for a long time and it was confidently predicted by the motor boat men who based their predictions on the performances of the Mary A during the meet of the Southern Califor-

nia Yacht Racing Association last July, that the Ahrens' boat would win easily. The prophets, however, failed to make allowances for either the knowledge of the waters to be raced over, or the wonderful ability in handling his boat, which Fellows has shown in all of the contests where he has taken part.

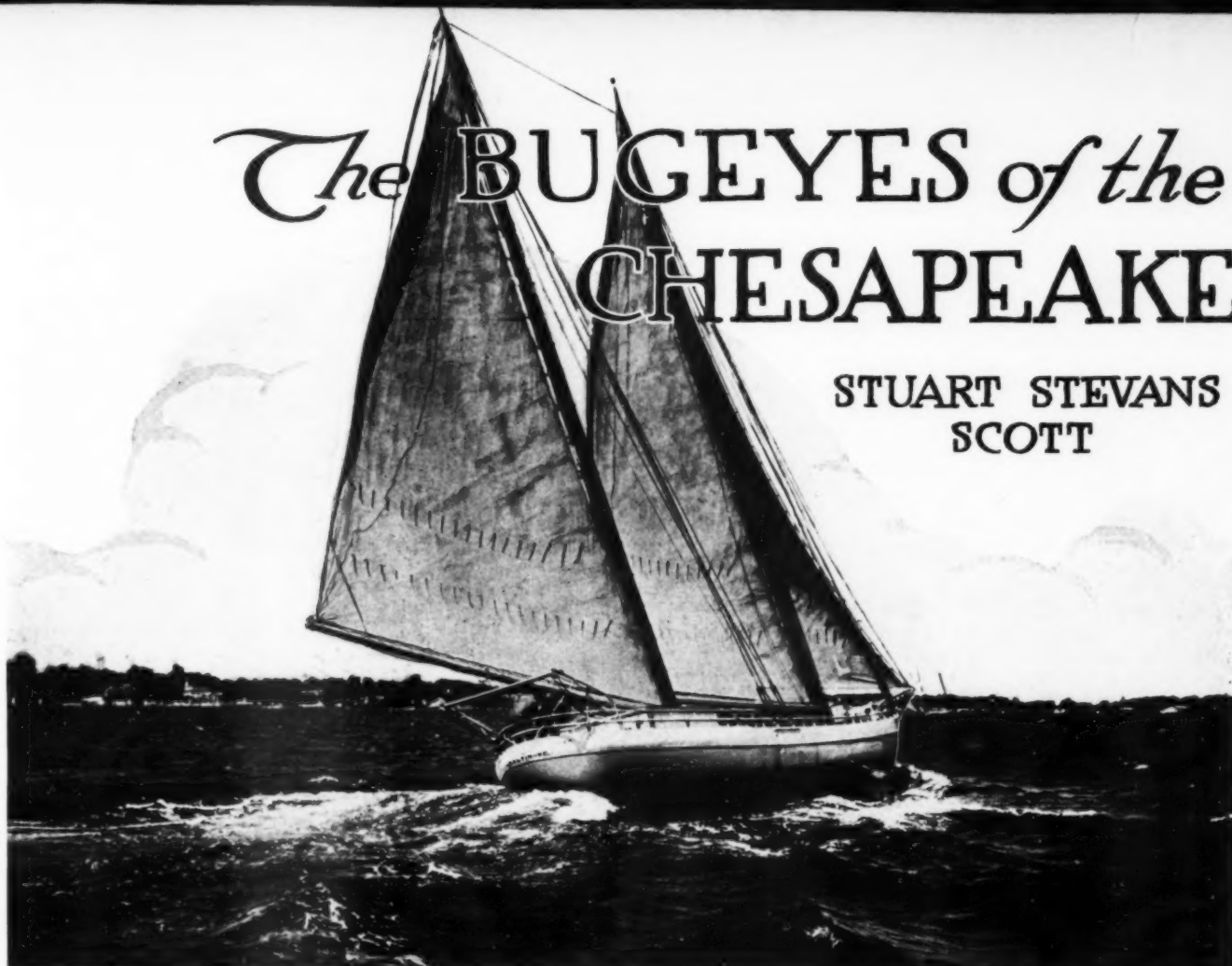
The start on Sunday morning, September 17, was off the San Pedro breakwater, as was the finish, and was made at 7:01 A. M., as the deed of gift under which the South Coast Yacht Club holds the races, requires that the start be made early in the morning, seven o'clock being the latest hour possible, in order that the power boats, most of which are small and open boats, shall not run into the sea generally kicked up by the afternoon breeze.

From the very start, when the water was smooth as a lake, and but a slight mist overhanging, the Campbell jumped into the lead and was never headed during all of the eighty knot race on the open sea. The weather was excellent, though as is always the case, the regular channel swell was present, and there was a bit of a chop on the south side of Catalina. Both boats behaved admirably. "From start to finish our engine never missed a stroke," said Carl Ahrens, who drove the Mary A most of the way. Just before he crossed the finish line Joe Fellows stopped for a half minute or so, when he found his engine heating up a little. But for that pause he would have still further lowered the time, and that pause was not actually unavoidable.

Start, 7:10. Finish, Campbell, 12:06; Mary A., 12:31.

The **BUGEYES** of the **CHESAPEAKE**

STUART STEVANS
SCOTT



How the Gasoline Engine is Broadening the Efficiency of this Interesting Type of Craft.

OF all types of craft, sailing, auxiliary and power, there is scarcely one as interesting as the Chesapeake Bay bug-eye, a vessel that is a product peculiar to that great inland sea that divides the state of Maryland and washes the shores of Virginia. On other waters it is a rare sight.

The Chesapeake bug-eye is not like anything else; it is in a class to itself and the true type is a development of the dugout canoe of the Indians who resided along those Chesapeake Bay shores long before Captain John Smith pitched his camp in the vicinity of Jamestown whence he sailed northward and found a "lovelye baye!"

The early settlers of Maryland, and particularly on the eastern shore of that state, found that the network of deep rivers made water transportation necessary; indeed to this day, to visit the Eastern shore and to see it one must often take to boat.

It was but natural that the settlers should recognize the dugout as a valuable aid, but while the dugout of the redskin was merely a tree gouged out with stone tools, the settlers, with their facilities and their natural, or rather, their advanced ideas, soon had craft of a better character for with steel tools it was possible to produce much better workmanship.

The early history of the Chesapeake Bay canoe, which was the offspring of the dugout, is obscure but, although boats of this type have been built during the past 200 years there has been but little variation in the methods of construction, save that black iron superceded treenails and now galvanized iron is used.

Although treenails have been completely discarded there are yet many canoe builders who contend that, below the waterline, black iron is superior. They say that although the iron may rust the rusting gives the metal a better grip.

The true Chesapeake Bay bug-eye is a log boat, as is the canoe, and while there are many bug-eyes on the bay that are of frame and plank construction, the majority are of logs, thereby putting them in a class of their own, so far as

construction is concerned. But more of this later on.

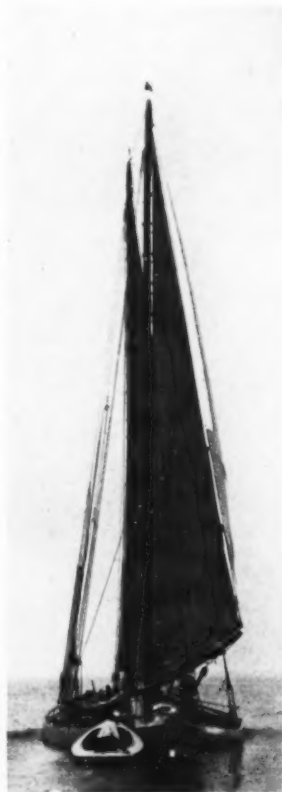
The log canoe, in its early stages, was paddled. Then came the sailing canoe and this led to the development of speedy racing craft and the holding of regattas at Oxford and St. Michaels. Canoe racing has gone out of vogue in recent years, largely on account of the introduction of the gasoline engine, but only a few years ago there would be from 25 to 50 of these fast log boats to meet at the annual regattas.

The fastest canoes of the Chesapeake were built on Tilghman's Island and the master hand that produced them was Greenbury Coffin. About fifty years ago he built his first racing canoe, the Island Bird. Then, in succession, came the Island Beauty, Island Belle, Island Bride, Island Queen and Island Blossom. All of these craft were less than 32 feet long. The Bird was about 26 feet and the others in between the length of the Blossom, which is 31 feet.

These boats were built during a period of about 10 or 15 years and each was turned out to defeat its predecessor. What is more, they came up to the mark and there never has been, nor probably ever will be, a canoe that will take the laurels from the Island Blossom. About 10 years ago a syndicate of Baltimoreans employed John Hudson, a famous builder of small boats, to build a frame and plank boat to race against the Blossom. This boat was named the William H. Neimeyer. The race was sailed but the Blossom was the victor.

Only last summer the Blossom was pitted against a 21-foot raceabout, the Ojigwan, and the canoe won with ease, the breeze being light.

These racing canoes carry an enormous amount of sail and for stability depend entirely upon their crew who "hike" to windward on long boards called outriggers. When on the wind with the crew of 12 to 14 men for a 30-foot boat perched high the canoe presents a pretty picture. When running before a light breeze great square sails are hung from both masts. It requires the greatest skill to handle one of these canoes for, usually, they will not even carry their own spars



A bug-eye being pushed to market by her motor tender.

and from start to finish it is bound to be a case of juggling.

It is interesting to note that, with the exception of the Island Blossom, all of the Island craft, and even the William H. Niemeyer, are now power boats. The Niemeyer is now known as the Nellie D. Where the others are, or what their names are I do not know but I do know that they had their canvas supplanted by power.

Now a few words about the construction of these boats for this feature is what makes them distinctive. It is an application of primitive means to attain a modern end, so to speak.

A log canoe or bugeye is not "laid down" as is a plank and frame boat. Nor is it planned in advance as to what its lines shall be, save in a very general way. More than that no shipyard plays a part. The canoe builder has never been a canoe builder by trade. It was, and is, a sideline of a farmer. Greenbury Coffin came as close to being a professional builder as any man ever did and yet he did not have what one might call a yard until a few years before his death. Prior to that he was a farmer.

When a man wants a canoe he goes to one of these men who know how and the order is given. The length and width are about the only specifications, although the purpose for which the canoe is to be used determine the width. If for racing then 5 feet to 5½ feet to 30 feet length. If for work, such as oystering or crabbing, then 6 feet.

The canoe builder slings his ax and adz over his shoulder and goes forth to get his material—trees that are standing. February is the month for cutting, before the sap has risen from the roots. The selection of the proper kind of a pine tree, for only pine trees are used, is no small matter; indeed it calls for the greatest knowledge of wood craft, and with the right kind of trees becoming more and more scarce every year the difficulties are greatly increased.

I recall that eight or nine years ago Mr. N. Tip Slee, of Baltimore, had a 45-foot canoe built and the year before he and Greenbury Coffin traveled more than 100 miles to find the most desirable trees.

The canoe builder, after making the necessary deal with the owner of the woods, selects a tree that he deems suitable for a "chunk" and fells it. Then, with his adz, he shapes it to conform with the other "chunks" that he will cut out later. When he has completed his "chunk" he blocks it up about a foot from the ground and goes on to the next tree. When the last "chunk," and it requires from four to eight or twelve of these "chunks" according to the size of the boat, has been cut the canoe builder is done work until June.

Then he has the "chunks" hauled to his workshop and the actual construction of the canoe begins. The "chunk" that will form the center is laid down and the hole for the centerboard is dug out or the shaft alley bored. For a boat 30 feet long this "chunk" will be about 6 inches by 8 inches. For a boat 60 feet long it will be 14 inches by 14 inches. For a boat 75 or 80 feet long it will be about 20 inches by 20 inches.

With an expert most of the work of shaping the logs, or "chunks," will have been done in the woods when the trees were cut so that all he will have to do, when he begins to build, will be to go over the logs and smooth them. They will then fit each other perfectly. The second "chunk" is bolted to the centerpiece, the third to the second and so on. In a canoe the third log is so shaped as to form the bilge, the top of the log being about 8 inches higher than the centerpiece.

The six pieces of timber bolted together are then turned upside down and the builder goes to work with his adz to "shape up." It is simple, this shaping, and yet it calls for skill to follow definite lines. It is not unlike whittling out a model, only on a larger scale, and gradually the canoe assumes form. With a large canoe, or bugeye, the proced-



The genuine bugeye retains the picturesque bow of the clipper ship. Note the simplicity of the rig.

ure is more difficult as the "chunks" are worked up separately, only the plane being used after they are assembled.

One can imagine what a job it would be to turn over a log hull composed of a dozen logs, each 75 to 80 feet long and varying from 20 inches by 20 inches to 8 inches by 10 inches and yet this is the quantity of wood that goes into the bottom of such a boat.

Only the bottoms and bilge pieces of either canoes or bug-eyes are of log, the remainder being built up of planking. To the logs, inside, are bolted the frames that will carry the planking and the deckbeams and, from then the work becomes that of ordinary ship construction. At the bow and stern of the logs are set in the stem and stern pieces, heavy timbers which are bolted through. These pieces carry the planking, as does the frame.

But before the canoe builder reaches the stage of building up he begins to "process" by filling the log hull full of linseed oil and turpentine. When this has soaked in he fills it again, continuing until the wood has drunk all it will hold. This saturation cures the wood, makes it impervious to water and gives it four times the life that it would otherwise have. The owner of the boat must oil down every few years and if he will do so the boat's life will be longer than his. There are today any number of canoes and bugeyes, built of logs, 40 to 60 years old and just as good as the day they were built.

The oil not only preserves the wood, but by keeping the water out it prevents the wood from becoming soggy and making the boat heavy, as most frame and plank craft become after a few years.

By this time you will have understood that the bugeye is merely an enlarged canoe. Where the name "bugeye" came from no one seems to know, though I have asked hundreds of old men. I have heard a story that might account for it. In the early days, so the story goes,

someone said that the hawse pipes looked like the eyes of a buck, there then being deer on the eastern shore. The answer to that was that they looked more like bug eyes, and straight-forward the name of bugeye was adopted. Sounds something like the story of the launching of the first schooner when someone cried: "See how she scoons," and the owner of the craft replied "Then a scooner let her be" and she was.

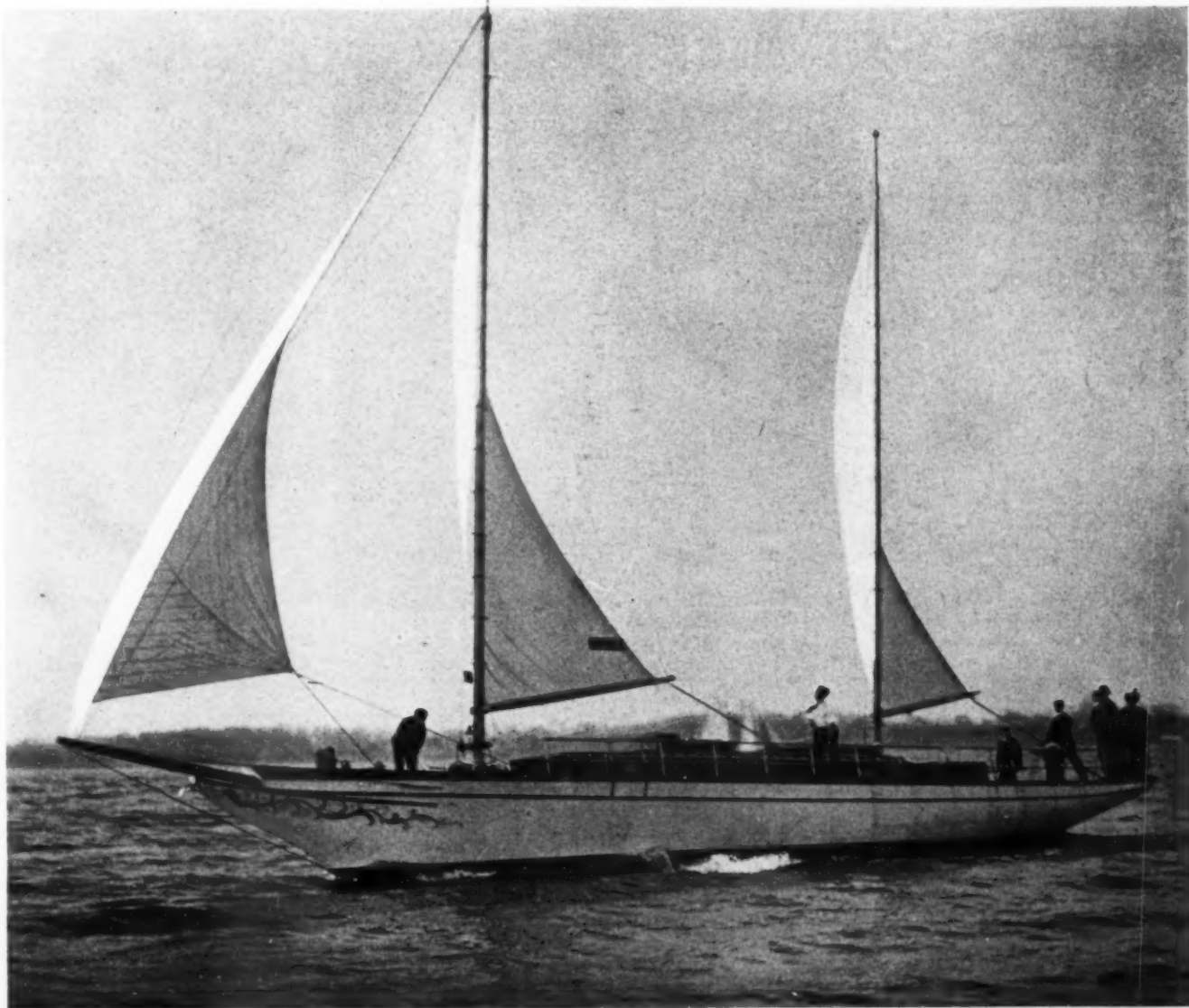
While there are a few persons who write of these craft as "buckeyes" the natives of the eastern shore knows not the word, it being "bugeye" to him now, and always will be.

The rig of the sailing bugeye is distinctive. It consists of two leg o' mutton sails and a jib, the latter having a "bonnet." This bonnet represents the lower portion of the jib that would be dispensed with to shorten sail to the first reef. Instead of taking a single reef in the jib the "bonnet" is taken off.

The leg o' mutton foresail and mainsail are set to masts that rake aft sharply, but this is really nothing more than though the masts were set plumb and the sails fitted with gaffs that peaked high. This principle was adopted on yachts some years ago, but the bugeye builders had the idea many years before that. It is this feature that makes these craft so fast. Take a 60-foot bugeye, give her about half a cargo and a stiff breeze and it takes a very good yacht of any rig to beat her to windward.

And there are some log bugeyes that are of some size, too, some of them being 80 feet on deck and capable of stowing 1200 bushels of oysters under their decks. The Eastern Shoreman never speaks of a vessel by her registered, or custom house tonnage. It is always of her oyster capacity, whether it be 20 bushels for a canoe or 1,000 bushels for a bugeye.

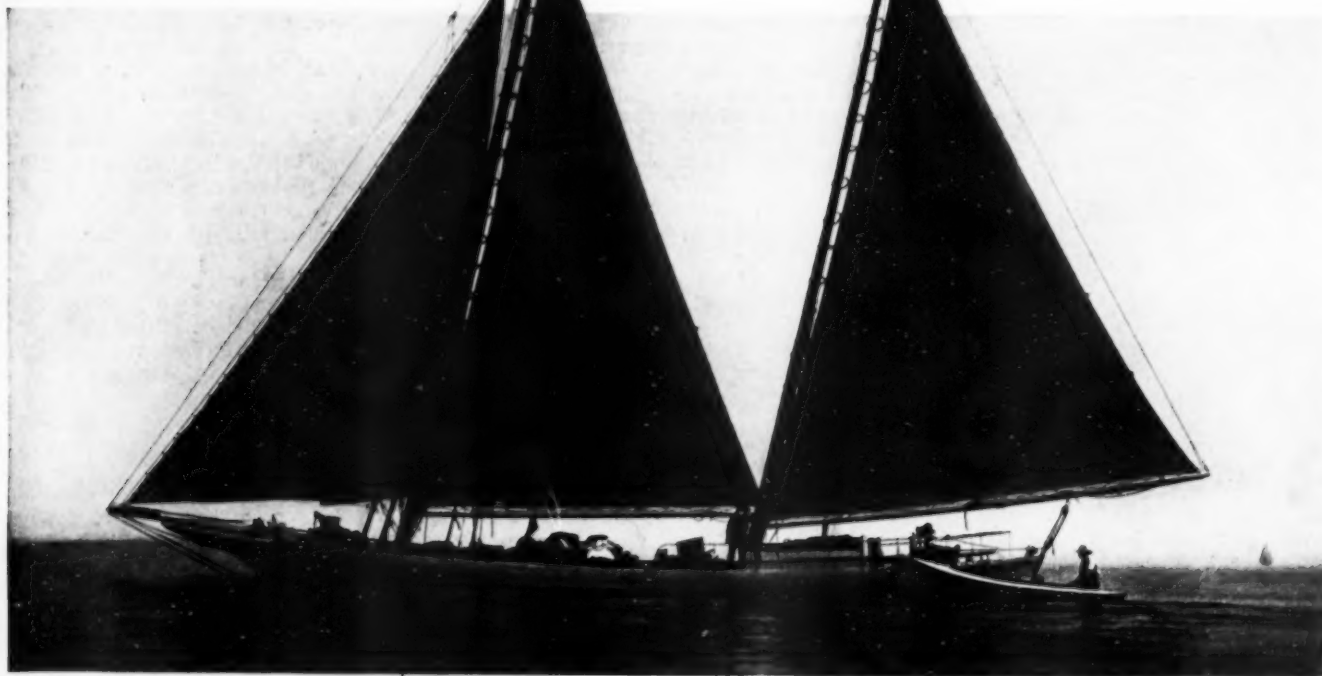
In the past few years the scarcity of trees has put a stop to the construction of many large log craft, though two or three are built every year, and these in keeping with the times,



The bugeye auxiliary yacht is the latest development of the type. The bow and the rig are about the only features that resemble the original.

are bored for engine shafts. No boat makes as good a power boat as one built of logs. Not only is the installation of the engine

vessels of more than 15 tons has been an impediment to many owners of working sailboats. The power yawl is, there-



The motor tender is becoming indispensable to the craft without auxiliary power. Even when loaded as above, the little fellow enables the captain to get his load to market in a calm.

made easy, but the solid timber takes up the vibration. Scores of power canoes and bugeyes are now built annually in all parts of not only the Eastern shore but the Western shore as well.

And, by the way, when cruising on the Chesapeake, be sure and drop in at Solomon's for a night. Solomon's is situated at the mouth of the Patuxent River on the west side of the Bay, some sixty miles below Baltimore. About four miles after passing Cove Point Light, you will round Drum Point Light and turn in up the Patuxent. You will come before long to Solomon's Island and you will not mistake the harbor, for it is unlike any other in the world. Usually it is crowded, and is filled with the most assorted collection of craft imaginable. Cats, sloops, schooners, yawls, ketches, dories, scows, steam yachts, and motor boats all swing together at this picturesque port. And here the bugeye may be seen in numbers and studied at close range. No trip to Chesapeake Bay is complete without a visit to Solomon's.

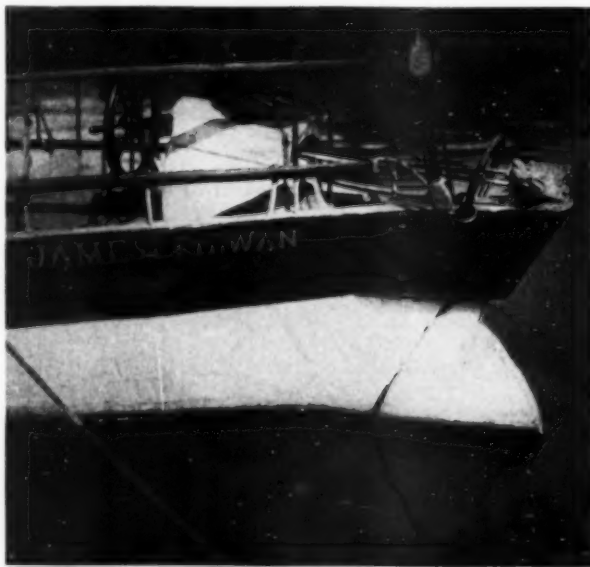
There are at least 50 sailing bugeyes equipped with engines making excellent auxiliaries, while hundreds

have motive power in the form of power yawl. The necessity of having a licensed engineer on

what a three or five-horsepower engine in a 16-foot yawl will do. One of these little boats, tucked up under the stern, will push a heavily laden bugeye at least three to four miles an hour when there is no wind at all.

There are numerous features about the bugeye not found on schooners. Take the steering gear, for instance. The rudder is hung outside, at the extreme end, and it is controlled by rods that reach to the steering gear on deck. The sharp ends have some disadvantages, inasmuch as the deck room is much reduced. To overcome that, some bugeyes are built with round sterns above the waterline. On others outboards are built on.

What makes the bugeye so attractive is that it is a man-and-a-boy craft, whereas a schooner of similar tonnage would require three men. The ease with which the leg o' mutton sails can be set, taken in or reefed can only be appreciated after one has sailed on a schooner and then on a bugeye. If there is power below then there is an addition to the simplicity, rather than a deduction, for the boy can steer while the man watches the engine.



A typical bugeye stern—note the interesting arrangement of rods instead of tiller lines.

How Reliance IV Defeated Kitty Hawk II.

THE most notable feature in connection with the speed boat races held in St. Louis, September 30 and October 1, under the auspices of the Carondelet Motor Boat Club, was the victory of Reliance IV, owned by J. J. Ryan, of Cincinnati, over Lee Counselman's famous Detroit speed boat, Kitty Hawk II, in the 26-foot class event. Kitty Hawk had only a little over two weeks before been declared the champion of the 26-foot class, by virtue of her defeat of Sand Burr II in the special match race with her rival, held at Atlantic City. Reliance, who had covered herself with

The Supremacy of the 26-Ft. Class Changes Hands at St. Louis.

glory at Buffalo after Dixie was eliminated, defeated the Detroit boat by a little under two minutes in the race of twenty miles. In the free-for-all event next day Kitty Hawk won from Reliance, but the latter was disabled and had to withdraw. In this race Missouri III, the other entrant, was a bad third. In the

20-foot class event Leading Lady defeated Pronto III by a narrow margin. The speed made by Kitty Hawk in the free-for-all event was marvelous—that is until an error was discovered in the official summary, which gave her time for the 25 miles as 43:05.50 and then credited her with a speed of 37.50 miles per hour, which, of course, ought to have been 34.79. Even so, that is going some, and the owners of both Reliance and Kitty Hawk can well take pride in the performances of their boats during a season which has seen the greatest development of the sport in its history.

The POUGHKEEPSIE RACE



How Bug, Erstwhile Hazel, Buzzed Her Edith II Chopped Fourteen Minutes Off the

Way to Victory and Record for the Course.

TEN starters out of eleven entrants, a finish in which four boats crossed the line within five minutes of each other after a run of 115 nautical miles, and the cutting of a generous slice off the record for the course, are some of the things that will be remembered about the Motor Boat Club of America's race for speed boat from New York to Poughkeepsie and return on September 28, 1911.

A cloudless sky and the crisp tang of an early autumn morning gave the racers keen zest for the long contest and an eagerness to be away. And they were away, too, promptly on time for once, and well bunched. Ten minutes before ten found most of the powerful motors quiet, but five minutes later, when the whistle of the yacht Paula sounded the preparatory signal most of them were filling the clear air with their rapid-fire exhaust music half a mile or so below the line. The excellent start followed and five minutes later they were all out of sight around Point Washington. The strong breeze made the river surface decidedly rough, yet the smallest boat in the race, Mr. Albert E. Smith's Bug, formerly called Hazel, which has distinguished herself repeatedly the past season in a number of ways, was the winning boat. The first boat to finish, however, was Edith II. She had a pretty contest with Peter Pan IV, owned by James Simpson, over the entire run. These two boats and also Elmer L II

rounded Poughkeepsie Bridge less than thirty seconds apart. Mr. Arthur V. Smith's boat then passed Peter Pan near West Point and held the lead till off Rockland Light when Edith parted company with her rudder. Fortunately, she had a spare one on board, and in less than four minutes was under way again. Peter Pan had in the meantime obtained a good-sized lead, but Edith ate up the intervening distance just in time and finished 53 seconds ahead. Her elapsed time was 5:08:42, while that of Peter Pan was 5:09:35. The record up to that time had been 5:22:43, made last year by Peter Pan III.

The third boat to cross the line was Lansing DeLong's Elmer L II, her time being 5:12:24. Then came Bug, less than a minute later, followed closely by Breeze I, another well known

racers. The other starters did not finish. W. J. Brainard experienced another chapter of hard luck when his craft, Gunfire, Jr., broke her engine base off Tappan Zee and had to be towed in to the local club. This accident was particularly unfortunate for him since Gunfire was competing at the time both for the regular prize and also for a special prize with Peter Pan IV, between the owners of which a keen spirit of rivalry has been felt all the season. They had arranged to race from the Columbia Yacht Club to Ardsley and return, but when the Poughkeepsie race was announced, it was agreed between them to settle their differences in this race. The two boats were racing on even terms, with no handicap, for a sterling silver cup and a side bet of \$500.00. At the time of her accident Gunfire was running faster than any of the boats, and some were already looking upon her as the winner.

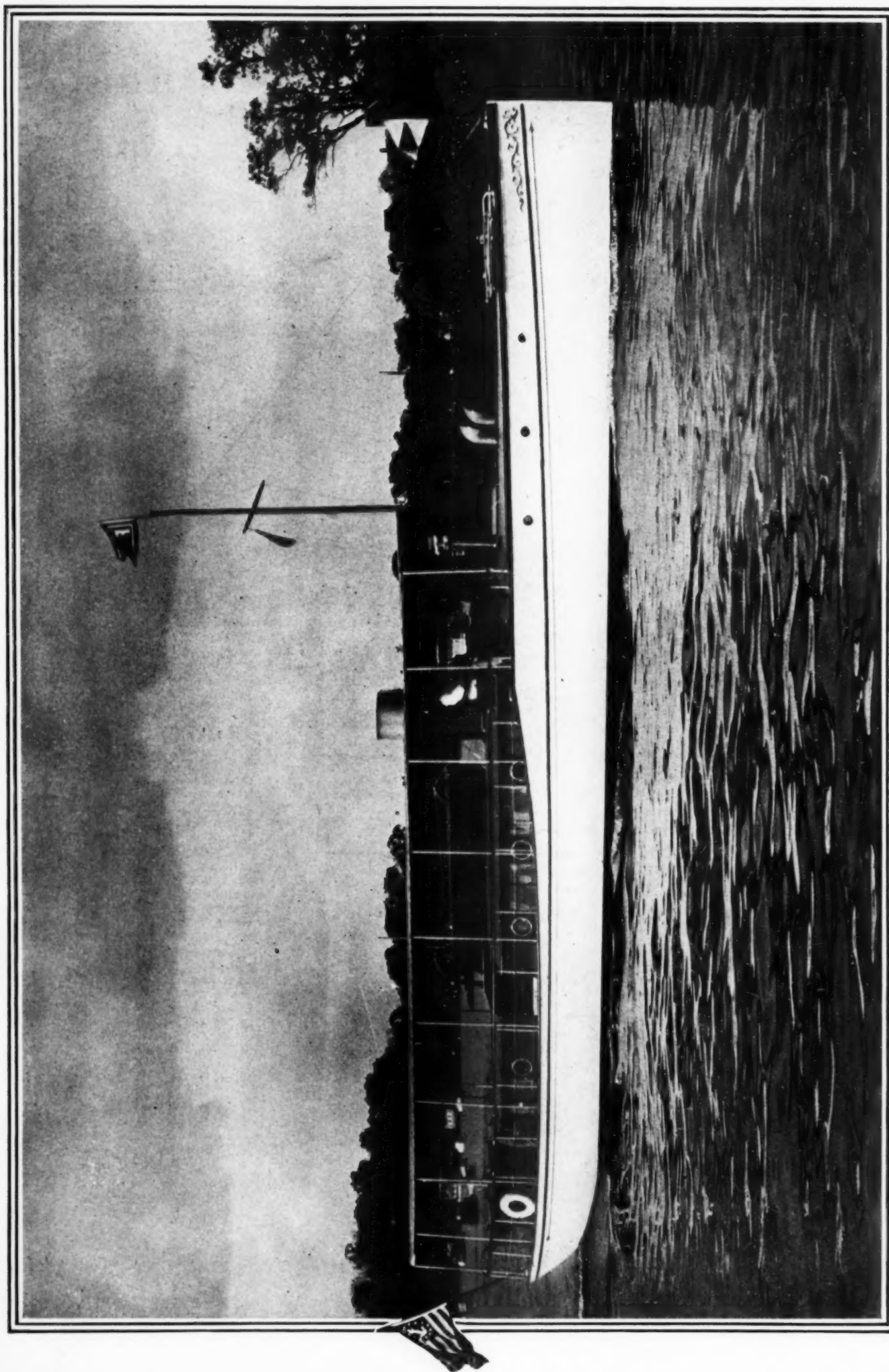
Bug, the winner on corrected time, again ran with wonderful regularity and ease. She did not, however, entirely escape mishap. When near Poughkeepsie some weed fouled her intake and she was compelled to stop for nearly twenty minutes to clear it. Vita, Slippery Goose, and Pazaza, retired from the race at various points along the course, and failed to report to the committee. Tequila, the allowing boat, owned by David Dows, burned out some bearings off Hastings on the way up, compelling her to withdraw.

Summary of the Race from New York to Poughkeepsie and Return—Distance, 115 Nautical Miles.

Boat	Owner	Rating	Elapsed	Corrected
Edith II	A. V. Smith	66.47	5:08:42	4:09:17
Peter Pan IV	J. Simpson	66.40	5:09:35	4:09:32
Elmer L II	L. DeLong	73.40	5:12:24	4:53:36
Bug	A. E. Smith	59.00	5:13:12	3:18:48
Breeze I	S. S. Breeze	66.47	5:45:21	4:45:56
Tequila	D. Dows	77.06	Disabled.	
Gunfire, Jr.	W. J. Brainard	66.40	Disabled.	
Slippery Goose	B. Cronin	62.64	Did not finish.	
Pazaza	F. J. Gregory	71.28	Did not finish.	
Vita	J. S. Blackton	64.51	Did not finish.	



Edith II lowered the record for the 115-mile course by fourteen minutes, but was beaten by Bug on time allowance.



The second Kathmar. She is a 60-footer designed and built by the Luders Marine Construction Co. for Robert T. Fowler, of the New Rochelle Yacht Club, to replace his 40-footer of the same name. See the description on page 41.



THE ASTORIA REGATTA

**How Oregon Wolf Proved Herself One of the Fastest Forty-Footers in America.
The Many Misfortunes That Failed to Daunt the Remarkable Wigwam II.**

WHY was Oregon Wolf not one of the contenders in the Harmsworth trials in Huntington Bay? Why was Oregon Wolf not among the defenders of the British International Trophy? These are two leading questions among the motor boating fraternity of the Pacific Coast these days.

The only reason that can be given for this negligence on the part of the coast racing men is that they were buncoed—just plain buncoed. It is a standing joke that when news travels a long distance it gets magnified out of all proportion. This may be the reason that the coast motor boat men thought that they were still in the amateur class instead of having a winner right in their hands. By the time that the speeds of the various boats that figured in the International race had reached the Pacific Coast, some 3,000 miles away from the recognized seat of motor boating, New York, Maple Leaf III was going some 57 miles an hour without half trying, Dixie IV could beat that figure with only two cylinders in commission, and there were a host of other boats that thought nothing of turning off 50 miles an hour every morning before breakfast. The result was that the Pacific Coast people thought that a speedster that could only go 40 miles an hour, while running on an even basis and could not turn over 45 miles an hour at top speed, was worth little as a competitor for the famous Harmsworth. It may be well to remark again that they were merely buncoed.

The facts of the matter are that in the same week that Dixie IV was tearing off 40 miles at Huntington, and affording the Eastern yachtsmen so much delight in seeing the cup retained in America, the Pacific Coast yachtsmen were watching Oregon Wolf cover the 30-mile course at Astoria at the rate of 39.5 statute miles per hour. There is a difference here also in that there were more turns in the course at Astoria than at Huntington. In order to cover the course Dixie IV had only to make four rounds while on the shorter course at Astoria six rounds were necessary. This makes Oregon Wolf turn four more times than Dixie IV and yet they only differed in average time by .9 of a mile. There is only one way to make comparisons of Oregon Wolf with Dixie IV in the line of actual performances and that is by her showing against Red Top III, the Fauber hydro, which was taken fresh from a victory over Disturber II at Peoria, to the Columbia River for the Astoria meet. Red Top was easily beaten by Oregon Wolf and this has some significance, although it is doubtful if Red Top would have figured so strongly at Peoria had Disturber II, which was undoubtedly the fastest boat at Peoria, not been disabled on the last lap of the race there.

The yachtsmen of the Pacific Coast were a sorry bunch when they heard the results of the International race. Not because Dixie IV won—they have just as much patriotic interest in the international events as have the Easterners—but because they had not entered Oregon Wolf in the event. Just a few yachtsmen on the Pacific Coast have looked for years with longing eyes on some of those Eastern trophies that are being battled for year after year, but it was not until this year that they had a real chance to take one down—and then

By Chester L. Wynn.

they allowed themselves to be led astray as to the relative merits of the boats of the East and West. It costs a lot of money to take a valuable racing craft across the continent and it can easily be seen why the Pacific Coast yachtsmen hesitate to send their fast boats to the big races in the vicinity of New York. But there is no doubt but that Oregon Wolf would have been in the big race if the West had been wide awake this year. That old bogie, "Wait until next year," is not heard in Western yacht circles this fall. It is, "They had us plumb locoed" and "We failed to play our hand."

Aside from Oregon Wolf, Astoria developed another winner this year, Wigwam II, which is undoubtedly one of the fastest 26-footers in

the world. This boat is a distinct monoplane and was built and piloted during the races by Charles Binkley, of Seattle, for Charles F. Wise, of Astoria. The craft has a clean entrance which curves off swiftly to an absolutely flat bottom just forward of the cockpit with rather sharp bilges and square transom. When at 30 miles an hour it displaces practically no water and only touches the surface with a comparatively slight portion of her flat after bottom. The boat looks unwieldy and very unsafe—much more so than a majority of monoplane craft—but it is the reverse. On a couple of days the waters of the Columbia were stirring it up pretty choppy but Wigwam made the best time on these days.

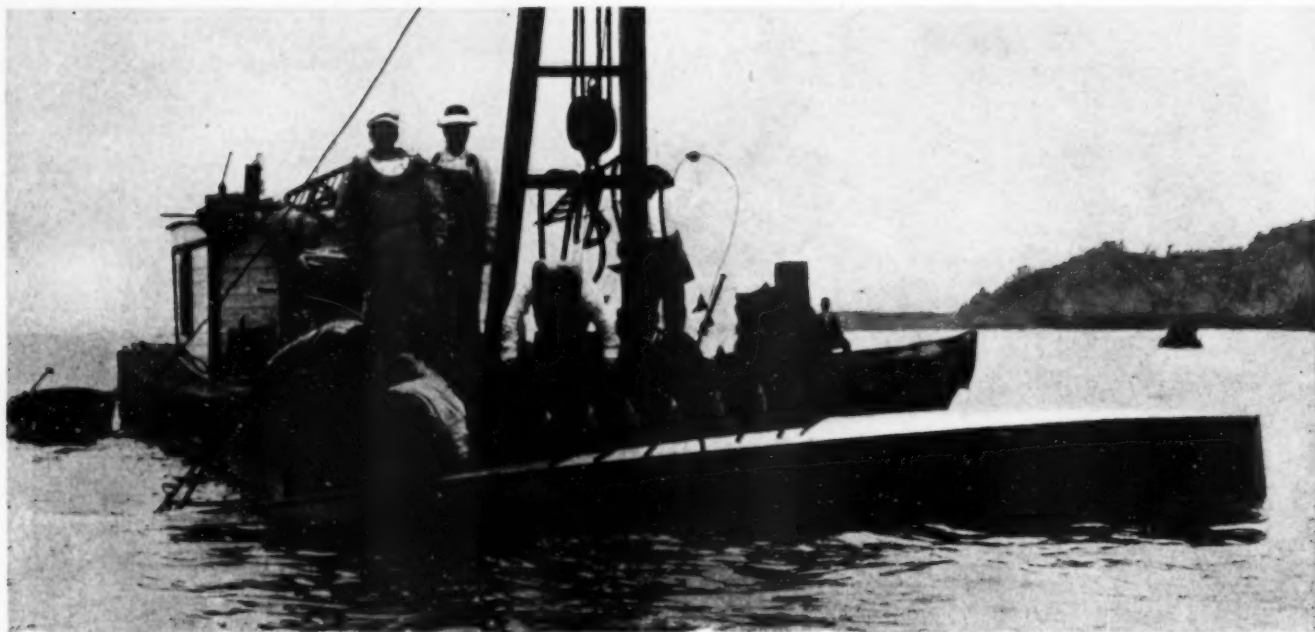
The course at Astoria is just 150 feet over 5 miles in length, although this is not entirely figured in the times that are given the racers. Wigwam II was in eight heats of the various races and her lowest mark of the list was 28.12 miles per hour on the average for the entire heat. In the free-for-all championships Wigwam II took down the third heat at an average speed of 31.85 miles per hour. She walked away with the two heats of the 26-foot championships with marks of 30.27 and 30.98 miles per hour.

It is doubtful if any boat ever mixed up so many accidents with so many heats and yet came in first or second in nearly every one as did Wigwam during the Astoria meet. The week before the races had started, while out for a trial spin, she fouled a piece of driftwood that was not showing on the surface and catching the stick in her rudder post was soon skimming along the surface with her bottom up. Binkley and his engineer were carried for several feet under the surface before they could extricate themselves, and just as they had cleared the craft her engine stopped and she dived straight for the bottom. Divers at once started to retrieve the boat from the bottom of the Columbia and a search of five hours was necessary before she was found. This was only two days before the races were scheduled to start, but in that time by working night and day Binkley and his engineer had her in shape. This was the beginning of a chapter of accidents and toward the end of the racing week the spectators were beginning to gamble on whether Wigwam would do a submarine act, and some went so far as to predict that Binkley would wind up in a hearse before he got through the monoplane.

The accident during the trial spin had not hurt Wigwam apparently when she appeared at the mark on Tuesday for the second heat of the 26-foot class and she won this with great ease. Binkley then started Wigwam in the second heat of the 32-foot class and again came across a winner. Wigwam again started within a few minutes in the second heat of the displacement championships and Binkley was doing pretty well with Oregon Wolf, which was the principal contender in this event until one of Wigwam's cylinders went bad and Binkley suddenly remembered that a wrench that he had made especially for the emergency was at the bottom of the river as the result of the dive of his craft a few days before. The result was that the cylinder remained dead until he could get to the shops,



In looking back over the season's racing, we might predict that in the future, no racing committee will be complete without a diver.



Though pursued by disaster, Wigwam II made a name for herself. She was wrecked three times and sank twice during the regatta and the photograph shows her being raised to the surface after the diver had found her.

The next day Wigwam furnished the sensation of the races. Three boats—Astor, Chelalis and Wigwam II—faced the mark at the start of the last heat of the race for 32-footers. Wigwam took the lead at once and went around the first five laps with Astor hanging a minute or two behind her. When coming down the home stretch and only about 500 feet from the finish the little monoplane hit another piece of driftwood. The rudder and its struts were torn from the stern and large holes were knocked in both sides. The rudder flapped about from side to side and narrowly missed Binkley a couple of times. The plucky pilot caught the rudder and with one foot over one of the holes and a piece of an oar in the other he steered the craft over the line. Just as he shot past the judges' boat he began crying for help but the spectators either thought that he was cheering himself or else were so spellbound that they could not move, for they stood and watched his boat sink from under him and only awakened to action when they saw the two men swimming for shore. Before leaving the boat Binkley tied a line to a life preserver and through this move made it easy for the diver to locate his craft. His forethought resulted in the Wigwam being raised within an hour, and while she was being towed to the shops Binkley was already on her making repairs of a minor nature.

Wolf go some is a strong tribute to her plucky pilot. This was one of her lucky days and there were no accidents in which she was a figure.

Red Top III was the unlucky one on this the fourth day of the meet. This famous speed boat which had burned up the rivers in the middle West had just arrived and there was much interest in the craft as it had something of a record and the Westerners wanted to see what the little hydro would do with Oregon Wolf. Commodore Bob Hughey was at the wheel and everything looked favorable for the best race of the week, but Red Top III was not to participate that day. Commodore Hughey was getting ready to start for the line when Sylph, of Portland, a semi-speed boat, came shooting around the boom of the U. S. tug Snohomish, on which the judges were stationed, and crashed into the bow of Red Top. The result was that the

next day she appeared for the second heat of the free-for-alls.

On Friday Binkley was as unlucky as the proverbial day itself. In the second heat of the free-for-all Wigwam was having a pretty battle with Oregon Wolf with Red Top hanging to their sterns and everything was going along in ship-shape order when—crash! In passing the British ship, Shearwater, on the second lap, Wigwam struck the anchor buoy



Wigwam is a 26-footer with a very conservative monoplane type of under-body, and is powered with a six-cylinder Leighton engine. She is owned by Charles F. Wise, of Astoria, and was driven by Charles Binkley, who refused to recognize disaster.

All the rest of that day and all night the pilot spent working on his boat, and the next morning when the gun for the free-for-all championships was fired she was on deck again apparently in the best of shape. That she took down second money and made Oregon

fine sharp bow of the Middle West racer was torn away and the boat that was not entered in the races was uninjured. Red Top did not go to the bottom as Wigwam had done twice previously because of the water tight bulkhead at the bow, and in a few minutes was tied fast to the wharf at the shops. Night work was spent to good advantage on the boat and the

which had bobbed beneath the surface, and away went the propeller, shaft and all. The shaft was torn loose up to the engine and

Binkley only saved himself from a third wetting and another submarine trip by holding a handful of cotton waste in the hole left by the vacant propeller shaft. With his other hand he joined the engineer in signaling for help and soon the wharf had another disabled and familiar craft tied beside it for repairs. During the night Wigwam was again put in shape by robbing Astor of her connecting rods and cylinder heads and the next day easily took down first place when the Wolf was put out of commission in the third lap by some short circuits and other engine complaints. Red Top was her nearest competitor, but the latter made a sorry showing as a result of the accident of Thursday. Red Top's engines were shaky and her planes were injured before two laps had been run and the craft had a hard time finishing.

Two days afterward when the sailors of H. M. S. Shearwater began to haul up the anchor and were ready to start back to their Canadian post, Wigwam's propeller and shaft were found caught in the chains and Binkley got these

working parts of his boat returned to him.

The heats for the displacement championship and those for the free-for-all championship were naturally the most important of the Astoria meet, although the 32-foot and 26-foot classes showed just as pretty races. The prizes in the displacement championship were \$1,000, \$750, and \$250 for first, second and third and those in the free-for-all were \$1,650, \$825 and \$525 respectively. When the gun was fired for the first heat of the displacement championship race Oregon Wolf, Potato Bug, Chehalis and the Nunes Flyer, owned by Nunes Bros., of Sacramento, were the only ones to cross the line. The Wolf began to pull away from the other boats at once and it looked to be all safe for the Portland boat, when suddenly the ignition system went wrong before the first lap was completed and Johnny Wolf had to withdraw. The Flyer went out in the second round and this left only the Potato Bug and Chehalis to fight it out. The former came in a winner. The next day the starters in this race were Oregon Wolf, Astor, Chehalis, Potato Bug, Wigwam II and the Flyer. By turning his boat up to 30 miles an hour Johnny Wolf took his boat across the line ahead of the contestants, with Wigwam II second, and Astor third. The third heat on the next day saw Oregon Wolf against Che-

The first heat of the free-for-all championship saw Oregon Wolf, Astor, Wigwam II, Potato Bug and Sylph cross the line and the first three named made a pretty race. Wolf took first, with Wigwam a close second, and Astor third. The next day in the second heat, Astor was not in place, but Red Top III was one of the competitors along with the Wolf, Wigwam II and the inevitable Potato Bug. Wolf took first, and the Bug second, although Commodore Hughey brought Red Top over the line in second position. The genial commodore had cut a buoy and was disqualified

Oregon Wolf, the latest of the "Johnny" Wolff boats, nearly reached the forty-mile mark. Although shown in the picture running as a displacement boat, she was provided with auxiliary planes for the free-for-all.

cost according to reports, \$46,287.11 and is powered with two 8-cylinder engines developing 500 horsepower.

Johnny Wolf has put out six boats in the past seven years which have each been a champion on the Coast from year to year. Hattie, Flirt, Vixen, Wolf, Wolf II and Oregon Wolf represent an evolution in speed from 25 to 40 miles an hour, and motor boat men in the



halis and Potato Bug, and with these two inferior boats against him Wolf had no trouble in winning. Potato Bug took second in this heat, and as a result with a first and a second to its credit, took second prize. Chehalis, with a second and third to her credit, took third money.

In the third heat Oregon Wolf was missing and Wigwam II, Red Top III and the Bug fought it out.

This was the fastest heat that Wigwam ran, her average rate being 31.85 miles per hour. Wolf took first money in this race as in the displacement event, with Wigwam II second and the Bug third.

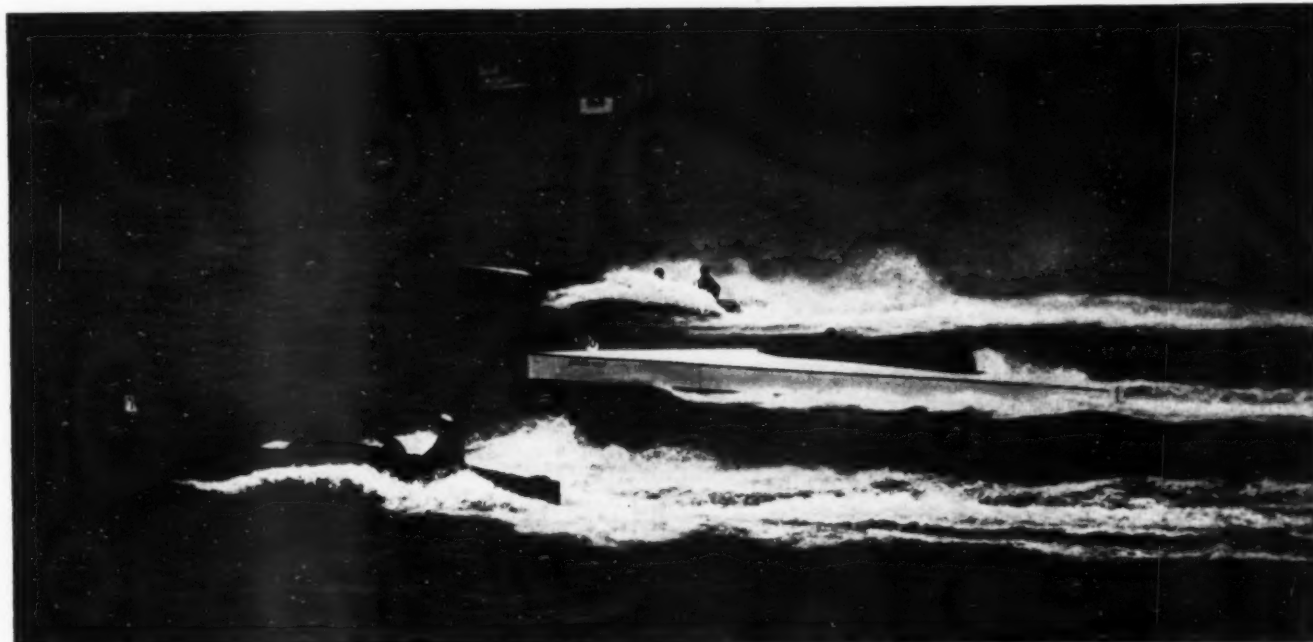
The showing of Oregon Wolf in comparison with Dixie IV is probably the more remarkable when some comparisons of costs and powers are made. The Wolf is 39.3 feet in length, 5.5 feet beam and is driven by one 9-cylinder Smalley engine rated variously from 250 to 300 horsepower. The craft was built at Portland by a syndicate of motor boating men of that city and her total cost was not over \$5,500. Dixie IV, on the other hand,

West have grown so accustomed to this building wizard coming forward year after year with a faster boat that they have the greatest of expectations every spring, and would think that the world had gone wrong if the Portlander did not beat everything on the Coast with consistent regularity.

In the displacement championships this year Oregon Wolf was drained by small syphon plates fitted at intervals along the bottom of the boat. In the free-for-all Wolf used a number of large steel planes which wing-shaped and fastened at the right angles to the bottom of the craft, aided materially in increasing the speed of the boat.

Wigwam II was powered by a six-cylinder Leighton engine, which at 1,000 r.p.m. delivered 120 horsepower, although during the races it ran up high enough several times to develop 150 horsepower. Charles Wise, who owns this craft, is already installing a 9-cylinder Leighton and hopes to have an even faster Wigwam next year with the same hull.

Astor, which was the old Seattle Spirit, the one-time pet and winner for Charles Binkley, who piloted Wigwam this year, did not come up to expectations this year. The old power



Nunes Flyer, Oregon Wolf, and Astor in the start for the displacement championship. When traveling as a hydroplane, Oregon Wolf rises out forward considerably more than shown here.

plant had been increased by moving the old 6-cylinder Leighton to the starboard side of the boat forward of amidships and the installation of a 4-cylinder Leighton aft of this on the port side. The owner said before the races that she would either beat everything on the river or else she would not go at all. His last guess was the best. Astor went very little, although it figured in most of the races. The placing of the engines made it a poorly balanced craft, and especially on the turns was it unwieldy and dangerous.

The races were conducted under the rules and by the officers of the Pacific International Power Boat Association and Captain E. W. Spencer, of Portland, was admiral of the

regatta and had command over the events of the week. The officials who acted during the meet were:

Judges—A. V. Comings, Seattle, chairman; Guy Clark, Bellingham; A. F. Rober, Portland; C. W. Boost, Portland; James S. Hawkins, San Francisco; L. E. Geary, Seattle; C. W. Chandler, Seattle.

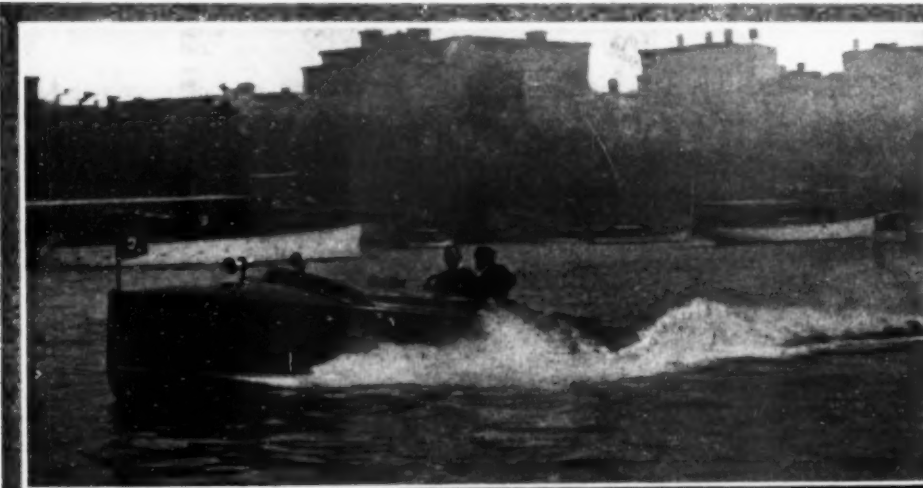
Racing Committee—A. V. Comings, Seattle, chairman; W. H. Curtis, Portland; L. E. Geary, Seattle.

Timers—F. K. Masters, Portland; Ernest Von Der Worth, Portland.

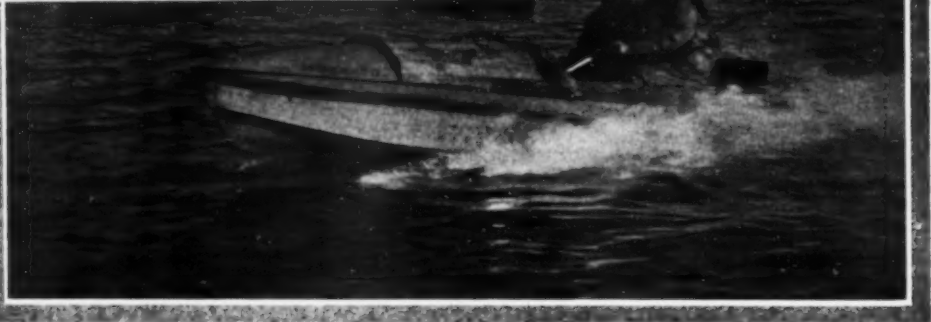
Clerk of the Course—James B. Welch, Portland.

Official Handicapper—J. P. Haddox, Astoria.

The people of the Northwestern section of the country look toward Astoria for the greatest aquatic event each year and it is the widespread interest along the coast that makes each year's efforts successful. This year's meet was an exceptional occasion and the appearance of at least one Eastern racer on the waters of the Columbia served to make the interest more general. The Federal government has always taken an interest also in the events and has not only measured the course, but has furnished patrols during regatta week. This year brought out the speediest boats the Columbia river has ever seen and Astoria is already beginning to prepare for the yearly event next year.



Mosquito, a 14-ft. hydroplane, designed by S. S. Breese and built by the Reliance Motor Boat Co. for Rear-Commodore J. Stuart Blackton, as a rule beater. Her Pierce-Budd motor is rated at 14.79 horsepower, and she is said to have attained a speed of over 26½ miles per hour in quiet water.



Peter Pan IV, owned by Mr. James Simpson, was the only boat that finished the sixty-mile race of the Columbia Club. She has recently had a step and a pair of bilge fins fitted to her under-body, converting her into a hydroplane with somewhat greater speed than she was capable of as a displacement boat.

Mosquito—An Experiment.

The First Appearance of a Fourteen-Foot Hydroplane Built by Rear-Commodore Blackton for the Purpose of Establishing His Belief That the Present Rules are Inadequate.

WHAT promised to be the last important race of the season, was held on Saturday, the 14th of October, by the Columbia Yacht Club on the Hudson River. It had been expected that Bug and Edith II would be on hand to compete with Peter Pan IV, Gunfire Jr., Breeze, and Mosquito, but they were not, and after considerable delay the last named boats made the start to Ardsley, the course being twice around a stake boat at that place, a total distance of 60 nautical miles.

It could hardly be called a race as Peter Pan IV, owned by Mr. James Simpson, was the only boat to finish, the others having withdrawn during the first lap. But the race afforded an opportunity of seeing Mosquito, the little 14 ft. hydroplane that Rear-Commodore J. Stuart Blackton had had built as a rule beater, and which had not yet been tried out in public. This little mite of a hydroplane is but 14 ft. long by 4 ft. beam, and is powered with a Pierce-Budd 3-cylinder motor of 4 in. bore and 4 in. stroke, rated under the A. P. B. A. rule, at only 14.79 horse power. She was designed by S. S. Breese, and was built by the Reliance Motor Boat Co. in a little more than one week's time. Her pro-

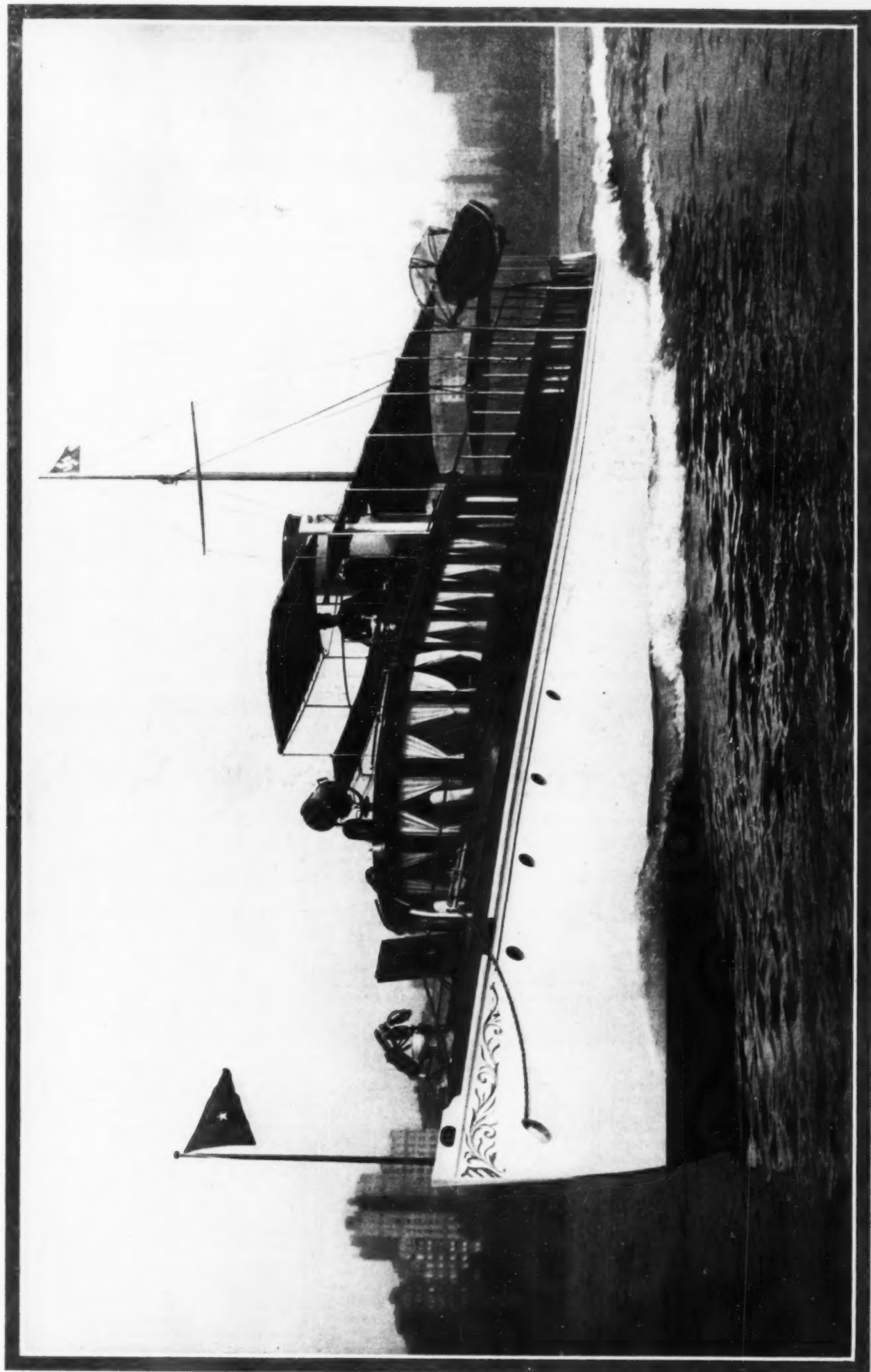
peller is a 14 x 22 in. Reliance speed wheel turning at 1,500 r.p.m.

Mr. Blackton believes that the rating rules are utterly unfit for dealing with the hydroplane, and he has backed up his conviction by having Mosquito built to demonstrate his opinions and her trouble in the race was unfortunate. In the light of the fact that her rating under the rule is 49.85, and that her speed in smooth water is said to have been at the rate of more than 26½ miles an hour, some comparisons are interesting. Fancy, for instance, Peter Pan IV or Edith II, both noted performers and both with 40 horse power, having broken the record to Poughkeepsie and return, being obliged under the present rule to give Mosquito over forty-one minutes in a thirty-mile race. Peter Pan IV won the championship of the Hudson River Yacht Racing Association, and Dixie IV is the champion of the world, and yet, if Dixie IV had only the rating of Peter Pan IV she would in all probability be beaten on time allowance by Mosquito. Vita won the Southern championship and the championship of Long Island Sound. She beat Peter Pan IV twice on time allowance. Vita would have to give Mosquito forty minutes in a thirty-mile race. Bug, the 16-

footer, won the Poughkeepsie race on time allowance, and it was this fact that caused Commodore Blackton to attempt to go her one better, and prove the working of the rule ridiculous. Bug is equipped with a 60 horsepower A. & B. motor and her rating is 59. She would have to give Mosquito 23 min. and 46 sec. in a thirty-mile race.

It would seem that Commodore Blackton is right in his stand that the introduction of the hydroplane gives an absurd advantage to the small boat under the present rating rules.

Mosquito was not seen to best advantage by the spectators who witnessed the start of the race. She tried a standing start, coming out from behind the side of her owner's steam yacht, Paula, when the gun was fired, and was last over the line. It appeared to be difficult to get the tiny hydro to plane at first, and when she did finally get away at full speed the other three boats were well up the river. The race was another case of the same old menace to Hudson River racing—driftwood. Driftwood was responsible for the withdrawal of Breeze, and Gunfire, too, had her share of it, though she limped back to port with a broken connecting rod. Peter Pan IV finished in solitary glory, completing the course in 3:01:22.



Photograph by Levick.

A big one "opened up"—Alfredine IV, the Seabury 99-foot, twin-screw motor yacht, owned by Ralph E. Slaven, of the New York Yacht Club.



The PRIZE CONTEST in QUESTIONS and ANSWERS



THE time is at hand for making things at home—things that you have found you needed on your boat, and that you must have for next season. You may have found that a steersman's seat is a pretty good thing to have along on a cruise when tricks at the wheel are long, and the ideas contained in the answers to the first question, will help you in designing it. If you're going to paint your boat yourself, look over the answers to the waterline question, for this covers the subject thoroughly. The answers to the last question are extremely interesting, as they discuss a much-mooted question upon which motor boatmen have always been divided in their opinions. All the arguments for and against the several possible positions for the motor are presented, and the discussions are extremely interesting and invaluable to the man who is already thinking about a new boat.

IN the questions printed below, we have given the auxiliary fellows a chance—both the sailboat man who uses the motor as auxiliary power, and the motor boatman who realizes the value of sails, both for steadying his craft in a seaway, and for emergency use. The last question is a particularly timely one now that so many are preparing to cruise in Southern waters where the Taredo worm holds forth.

THE QUESTIONS FOR THE JANUARY CONTEST ARE THESE:

Give the best method of installing a motor for auxiliary power in a cruising yawl. Sketches are desirable.

Suggested by C. H. S., Baltimore, Md.

Give plan and instructions for making and carrying an emergency sail or sails on a raised deck cruiser.*

Suggested by F. A. Ziem, Alpena, Mich.

When you send in your answers, state what you will take if you win a prize.

What is the best method of preparing the bottom of a boat for use in Southern waters?

Suggested by J. C. M., New York City.

ANSWERS to these questions, addressed to the Editor of MoToR BoatinG, 381 Fourth Ave., New York, must be:

(a) In our hands on or before November 25, (b) not over 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of November.

THE PRIZES ARE:

For each of the best answers to the questions above, any article advertised in MoToR BoatinG, of which the advertised price does not exceed \$25, or a credit of \$25 on any article advertised in MoToR BoatinG, which sells for more than that amount.

(There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.)

For each of the questions selected for use in the next contest, any article advertised in MoToR BoatinG, of which the advertised price does not exceed \$5, or a credit of \$5 on any article advertised in MoToR BoatinG, which sells for more than that amount.

For all non prize-winning answers published we will pay space rates.

*A similar question was suggested by W. Selleck, of Stamford, Conn., but as the above was submitted earlier, it was given preference.—Editor.

A Seat for the Man at the Wheel.

A Number of Ingenious Devices for the Small Cruiser in Which Space Is Limited.
Seats That May be Folded or Removed When Not Required for Use.

THE PRIZE CONTEST—Answers to the First Question in the September Issue.

A Pipe and Canvas Seat.

The Prize Winning Answer.

THE average owner of a small motor boat, who desires a portable seat, whereby to add a little comfort during his turn at the wheel, will find it necessary to consider several things before he proceeds to build it.

First of all, the lack of space requires that this seat be small and readily disposed of when not in use.

Second, that it be sufficiently strong and durable not to require constant repairing and at the same time be reasonably light in weight.

I have endeavored to illustrate a method of constructing a seat that will embody these qualities and is very simple and inexpensive to construct. The seat proper is an iron frame $\frac{3}{4}$ in. galvanized pipe, with 10 oz. duck tightly laced within. One side is fitted with a $\frac{3}{4}$ in. T-joint sufficiently loose to slide. Into this joint is fitted a piece of pipe sufficiently long to act as the support. The opposite side is secured firmly against the side of the boat with 2 in. x $\frac{3}{4}$ in. galvanized iron straps, the height being the same as the length of support.

The canvas center should have a 2 in. hem all around into which should be set grommets two inches apart.

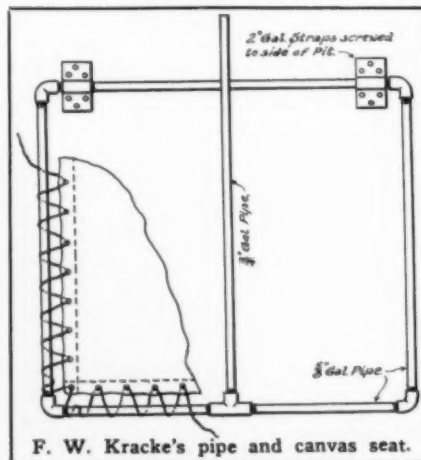
When not in use this seat can be dropped flat against the side of the cockpit by lifting out the support, which can be folded over

against it, and secured with a small piece of wire or cord. By bending the support slightly, as shown, the seat will lie perfectly flat, when not in use.

I have not given dimensions, as one would naturally construct a seat to suit his own individual requirements as regards the size and height.

This seat will be found to be solid and rigid and not affected by rain or sun.

F. W. KRACKE, Charleston, S. C.



F. W. Kracke's pipe and canvas seat.

A Very Simple Device.

A REMOVABLE steersman's seat for a cruiser should possess stability when in use, occupy little space when not in use, and be easily removed and put in place.

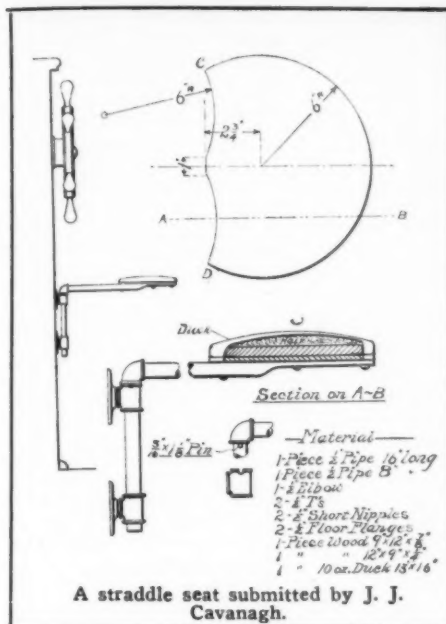
The seat shown in the drawing is ten inches wide and has two strips, an inch wide, fastened on the under side at the end, just far enough apart to allow the coaming to go between them. The support is the same width as the seat except in the center where the edges may be cut away. The support is fastened to the seat with two hinges. When in use the lower end of the support fits into the angle formed by the deck and side of the cockpit.

A hole is bored through the seat and support and a rope put through and knotted at the ends to prevent the seat opening too far and straining the hinges.

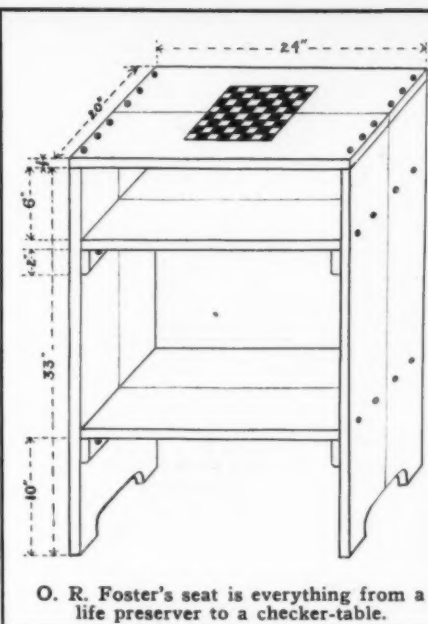
The top of the seat is covered with pantosote or leather, nailed around the edges with brass tacks, and padded with hair.

This seat for a cruiser, with coaming twenty-two inches above the deck, occupies, when folded, a space ten inches wide, twenty-eight inches long and three inches thick. A convenient place to carry it when not in use is on the cabin roof inside the hand rail.

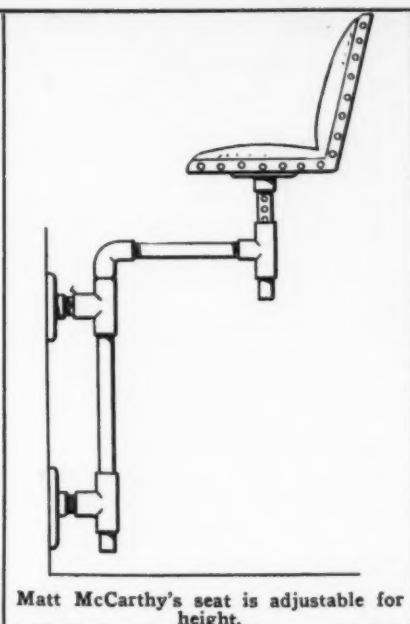
The wheelman can face forward or sit sideways with feet toward the center of the boat. In the latter position, if a guard rail is used



A straddle seat submitted by J. J. Cavanagh.



O. R. Foster's seat is everything from a life preserver to a checker-table.



Matt McCarthy's seat is adjustable for height.

above the coaming, it forms a back to the seat. A folding back can be arranged, if desired.
S. P. ALEXANDER, Port Clinton, Ohio.

A Seat With Many Uses.

THE accompanying perspective-dimensional sketch shows a seat which may be easily made with few tools, in a short time and with little labor and expense. The sketch is almost self-explanatory. All the screws, of course, should be countersunk. The edges and corners should be rounded with a plane rather than be left sharp, as shown.

The seat may be made of any wood which should be stained or painted to match the interior of the cockpit. Seven-eighths inch material should be used.

There will be needed: 2 planks, 10 in. x 24 in.; 4 planks, 10 in. x 33 in.; 4 planks, 10 in. x 22 1/2 in.; 4 cleats, 20 in. x 2 in.; 3 dozen wood screws, 1 1/2 in.

When made, as shown, the seat is firm and

steady; if greater stability is required, it can be fastened to the deck by any kind of a catch.

It has many uses: On the upper shelf the steersman can stow trifling necessities; his blue glasses, binoculars, a coat or sweater, and last but not least, a box of "smokes" with some matches. On the lower shelf may be placed a megaphone, a life preserver, an oilskin jacket, etc. All of these articles he has within easy reach and therefore need not leave the wheel or ask anyone to fetch things from the cabin.

When at anchor, this seat has additional uses. The top may be marked off into inch squares (8 on a side) as a checker-board. Its height makes it convenient for this when the players are seated in ordinary wicker chairs.

It can be turned on its side and then forms an impromptu table for serving lunch. It may be used as a seat for two people. Whenever a little tinkering is to be done it makes an excellent work-bench. In case of emergency it becomes a life preserver.

O. R. FOSTER, Brooklyn, N. Y.

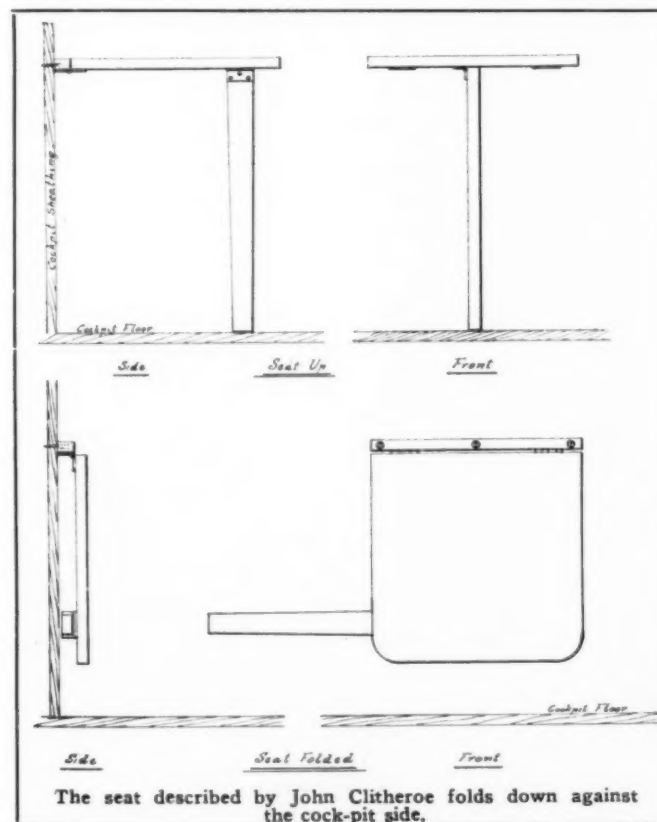
Folds Against Side of Cockpit.

THE seat shown in the accompanying drawings, is suitable for a small cruiser, which has the steering wheel located at the side of the cabin bulkhead. It is practical and of simple construction, and can be raised for use or folded out of the way in an instant.

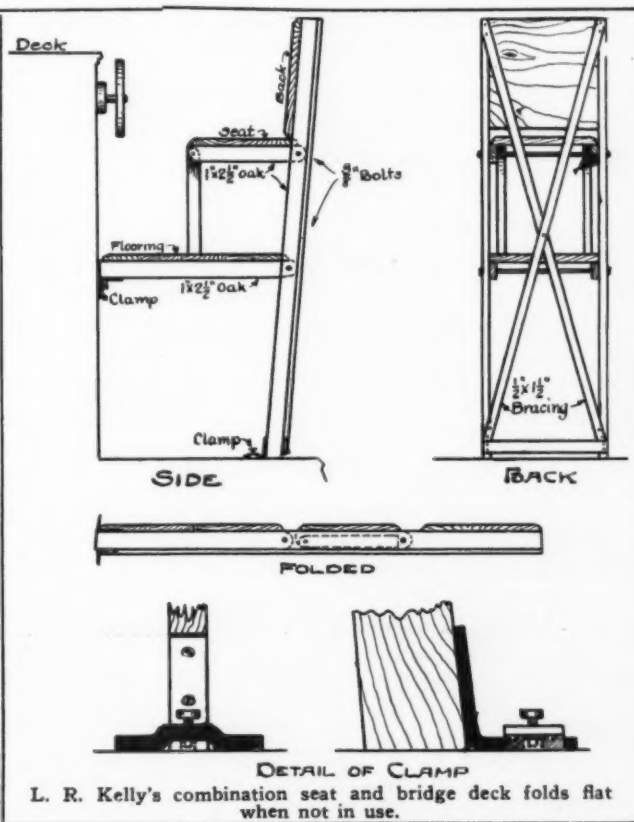
A piece of 7/8 in. oak, 1 1/4 in. wide and 16 in. long, is screwed with three screws to the cockpit sheathing, at a suitable height from the cockpit floor, that will enable the steersman, when seated, to see well over the top of the cabin. To this is hinged the seat, made of oak 7/8 in. thick x 16 in. wide and 16 in. long, with a leg, made of the same material 7/8 in. thick x 2 in. wide, hinged to the under side of seat, near the front edge.

When the seat is not required it folds against side of the cockpit.

JOHN CLITHEROE, Attleboro, Mass.



The seat described by John Clitheroe folds down against the cockpit side.



L. R. Kelly's combination seat and bridge deck folds flat when not in use.

Bridge Deck and Seat Combined.

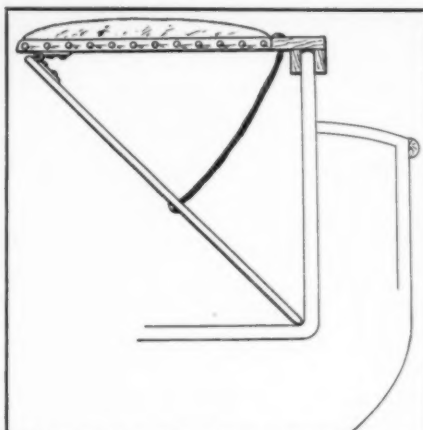
THE drawing illustrates thoroughly the idea for a practical, comfortable and folding steersman's seat. It must be substantially made of oak (the sizes given will be found correct in most cases), and well braced. This arrangement will fold flat and probably be of other service on board when not doing duty as a seat. The brackets for fastening to floor and bulkhead clamp the frame steady when the thumbnut is tightened, and prevent its slipping out, with probable damage to the navigator.

A cushion will add much in the way of comfort. L. R. KELLEY, Philadelphia, Pa.

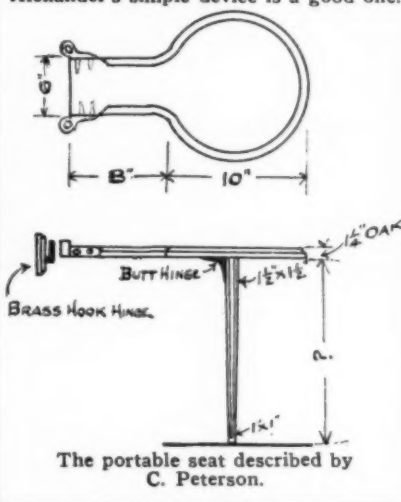
Used Piano Chair.

I HAVE found that this simple and inexpensive equipment meets all requirements for rigidity, adjustability, and the ease with which it can be stowed away or quickly swung aside if the helmsman wishes to stand, as is usually the case when entering a lock or making a landing. It has the great advantage of a back that is mighty comfortable when doing a long trick or in smooth waters. Two ordinary $\frac{3}{4}$ in. flanges are secured to the bulkhead in such a position as may best suit the location of the steering wheel. If the bulkhead is of thin stuff it should be reinforced on the inside by a "thickness piece," say of $\frac{3}{4}$ or $\frac{7}{8}$ in. stuff, and small bolts just long enough to go through the flange and bulkhead and reinforcement used to hold them firmly together. Then two "close" or "short" nipples are screwed into the flanges.

Take two $\frac{3}{4}$ in. Ts, bore them out "through the run," or the long straight way of the T. This may be done with a round file, but any shop can put them in a lathe and do a fine job in a few minutes at a cost of a couple of dimes. This leaves the side outlet with a thread in, so they may be screwed on to the projecting nipples and in line so that the upright pipe will slide easily therein. This upright pipe should be cut long enough to go through both Ts and a little over. Have the



Where the coaming is not sheared, S. P. Alexander's simple device is a good one.



The portable seat described by C. Peterson.

upper end threaded for a $\frac{3}{4}$ in. L, that is screwed on and set up tight, then take another piece of pipe, threaded on both ends, and long enough to allow you to sit down and clear your knees away from the bulkhead, etc.

For a seat I used an ordinary piano chair, with a back, as I could buy one very much easier and cheaper than I could make even a makeshift for this comfortable and well put together article, but any sort of a seat desirable is open to the same treatment. At the chair end of the horizontal pipe I put another T, bored out same as the others, and made fast on the side outlet. Another $\frac{3}{4}$ in. flange was fastened on the bottom of the chair, in this instance removing the usual flange with coarse threaded stub thereon, a short piece of pipe threaded at both ends set up tight into the flange and down through the T, projecting far enough below to allow an ordinary lock nut to be screwed on, thereby rendering the chair secure. As I found it necessary to adjust the chair a little higher on occasions to accommodate a "helmswoman" I bored a couple of holes directly through the upright pipe, and just below the top of the Ts, then by lifting the upright I could, by means of two pins made from $\frac{5}{16}$ in. stock, elevate or depress the seat several inches.

The whole outfit cost less than two dollars, and is absolutely reliable under any conditions. On another boat, where the pilot was a heavy-weight, I made the arrangement out of one-inch pipe stock. Of course, all threads are set up tight, and in the case of the one-inch outfit, I drilled $\frac{1}{4}$ in. holes through pipe and Ls. "cross-pinning" them with a wire nail cut off flush and headed over. Made of galvanized fittings, they can be stained or painted the color of the bulkhead, looking as if they grew there, or, if of brass pipe, it is a decided ornament to the craft.

MATT MCCARTY, Albany, N. Y.

A Removable Seat.

THE portable seat, for the one at the wheel, shown in the attached sketch, should not cost more than \$1.50 exclusive of labor, and anyone able to saw straight may make it easily.

The hook hinge method of hanging may be modified by using the style of hinge found on railroad portable tables. However, this style of hook must be set into the wood, and cabin bulkheads are not extra thick.

C. PETERSON, Brooklyn, N. Y.

Striking the Water-Line.

How to Obtain a True Line Which Is So Essential to the Appearance of the Motor Boat. With Some Suggestions for the Man Who Does His Own Painting.

THE PRIZE CONTEST—Answers to the Second Question in the September issue.

Straight Edge and Line.

The Prize Winning Answer.

FIRST, plumb the stem to make sure that the water line will be an equal distance from keel on either side of the boat. Then mark the point on the stem and stern where you want your water line. It is good policy to raise your line up about four or five inches, depending upon the size of the boat, so that the scum that collects on the boat will not show on the white paint. After you have your points on stem and stern take two pieces of board of any width, say about four or six inches, and plane one edge straight. Tack one to your stem with the top edge at mark which you made and the other one on the stern. Take a spirit level and get this straight edge level, then brace the outside end to something (see sketch). After you have the two boards level and fastened, get two of your friends to stretch a string over the tops of the straight edges and hold it taut, letting it barely touch the hull, and put a small brad just under the line. You can start at either end and work around to the other, and placing the brads about a foot apart. When you get to where the hull slants under, be careful not to let the

string touch the hull as this will tend to draw the string out of alignment. After you have all the brads in, take a narrow strip of wood, say about $\frac{1}{4}$ in. x $\frac{1}{2}$ in. and hold it up tight against the brads. Take a scratch awl and scratch the water line in about $\frac{1}{32}$ or $\frac{1}{16}$ of an inch; then you will always have a line that is easy to paint along without running the colors together. Do the other side of the boat in a similar manner.

This may look like a lot of work, but you will be surprised to find how quickly you can do it. You will also find by following the above instructions that you will have a water line as straight as though you had drawn it with a straight edge and one that will add to the beauty of your boat.

G. E. REID, Chicago, Ill.

Chalk Line and Batten.

FIRST determine height of waterline at bow and stern. One of the surest ways of doing this is to take the boat in still water, and when properly trimmed mark exact water height at both bow and stern. Two or two and one-half inches above these marks will be about right for waterline on most boats, as it is desirable to have the bottom anti-

fouling coat extend slightly above the water.

Haul out boat and place on even keel by leveling across gunwale or coaming at widest part; elevation of bow and stern of no account. At the determined height secure a light straight-edge board about 16 ft. long across both bow and stern (on edge) with brackets or stakes, and level both boards accurately. With an assistant take a fine chalk line (using white or colored chalk, according to surface worked on) and drawing tight across top of the two leveled straight-edges. Begin at one end by holding the opposite end of line out on the projecting straight-edge to allow the first end to contact lightly with side of boat at that end, and with a slight sawing movement of the line to just scrape with side of boat sufficiently to make a mark without rolling the line downward with sheer of boat. By gradually working the first end of line out on the straight edge, while the other is gradually moved in toward the boat, a true line will be laid from stem to stern. Care must be taken to keep the line taut at all times.

A thin, flexible batten may now be tacked along this line, and with a racing knife or a sharp-pointed file a fine, permanent line may be slightly cut in the wood.

HALSEY M. SMITH, Glen Cove, L. I.

Use the Chalk Line.

MAKE sure, by means of a plumb line over the stem or spirit level across the deck, that the boat has no list. It does not matter if the bow is higher than the stern or vice versa.

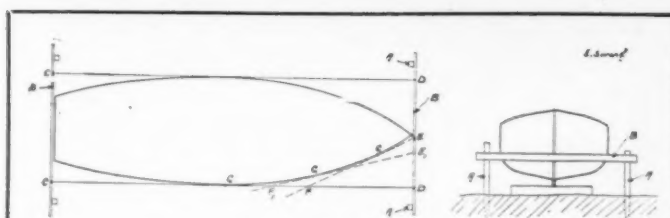
Drive into the ground or secure in a suitable manner to the floor, four uprights "A," as shown on sketch.

Fasten to these uprights, across stem and stern at desired height, two straight boards "B," and ascertain, by means of a spirit level, that their upper edges are perfectly horizontal.

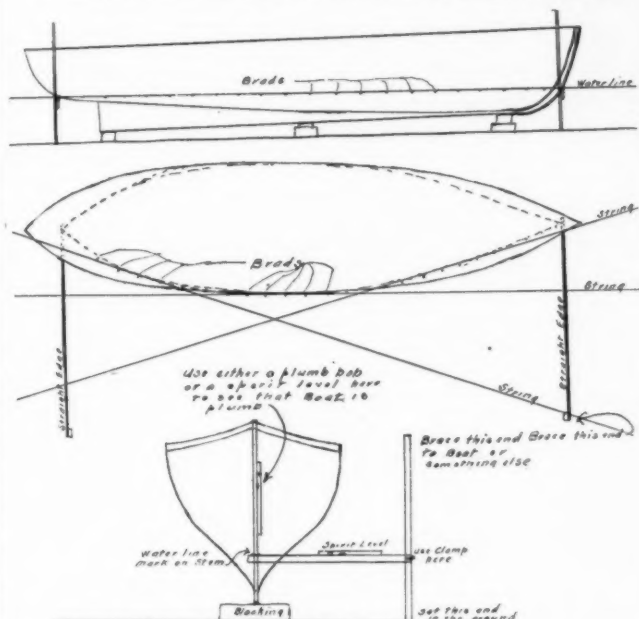
Stretch chalk lines "C-D" fore and aft over these boards so that they just touch the sides of the boat. If desired to have a perfectly straight waterline, pull these chalk lines taut, or if a slight sheer to the waterline is wanted, slack the lines as much as desired. Care has to be taken that drop is equal on both sides.

The chalk line "E-F" is stretched from a suitable point on cross pieces "B" over the chalk line "C-D" so that it touches the hull, and in this manner any number of points "G" can be gotten for the waterline. A batten is tacked to the hull through these points and the waterline scored in the planking with a blunt point so that it is easy to paint along.

E. S., Long Island City, N. Y.



A diagram illustrating E. S.'s method of striking a water-line.



G. E. Reid also suggests the chalk line and straight edge method.

By Taking Sights.

PROP up a straight-edge board about ten feet long, parallel with boat and about the length of the boat away. Mark at bow, stern and amidships where you wish the waterline to come, and raise or lower board till a line of sight across the top intersects the three marks. Have helper mark every three feet where line of sight hits hull. Tack a bat-

ten to these marks and scratch the line in with the point of a triangular boat scraper, and you will have a line that can be readily found every spring. If convenient to sight only one side the line on the other side can be easily found by measuring distance from sheer line every three feet.

I prefer a slightly rockered waterline, which is obtained by having sighting board a little below the level of the waterline on hull. A

motor boat changes trim considerably when loaded and running, so a straight waterline is unsightly.

H. W. McCOMB, Lockport, N. Y.

Paint Top Sides First.

IN laying out a waterline the most important fact to remember is that a true waterline is a perfectly straight line from stem to stern on each side of the boat. A slight variation of this line will greatly mar the symmetry of the boat's appearance in the water, owing to the fact that it is usually from two to five inches above the actual draft line and the contrast between the colors above and below the waterline attract the first glance of the eye and an uneven line will be glaringly conspicuous.

On large ships this is generally obtained, after the points at the bow and stern have been determined, by sighting with a glass along these two points while the exact level is marked at different places with chalk and the whole line laid out with a chalk line from point to point.

A simple method for medium and small craft is to tack or secure two straight edges at the desired point of bow and stern long enough so that they may be seen from either end, being sure to have both boat and straight edges perfectly level, and then stretch a chalk line from bow to stern so it will just touch amidships, or at her greatest beam. Snap it to mark this point and holding the line at the mark made on the boat's side gradually work fore and aft holding it at different points until the whole line is completed.

In painting it is a good policy to apply the copper paint last, as a good, heavy coat can be used to cover all defects or variations without and chance of it running.

E. A. CRAWFORD, Newark, N. J.

The Best Position for the Motor.

In the Small Cruiser Should the Motor be Installed in the Cabin, in the Cockpit or Beneath the Bulkhead? All Phases of the Question Discussed by Contestants.

THE PRIZE CONTEST—Answers to the Third Question in the September issue.

Under Hatch in Cockpit.

The Prize Winning Answer.

THE position of the engine in a small cruiser is often so determined by the size of the boat, the position of dead-weights, as gasoline and water tanks, the comparative lengths of cabin and cockpit, and is frequently entirely independent of any wish of the owner as to whether it should be in cockpit or cabin, or partly in both.

Such was the case with the writer who would have placed the engine entirely under a hatch in the cockpit, but the space between the inside stuffing box of the shaft and the cabin bulkhead was so limited as to accommodate only the reverse clutch and two cylinders of the engine, the other two cylinders and the flywheel had perforce to run out into the cabin. It was a sweet and quiet running engine in general—well behaved as an engine should be which is permitted to reside at least partly in the cabin—yet at times the flywheel would throw oil very badly, and though the ladies wiped this up with their dresses, yet the

things they said were not pleasant, and we were oppressed by a fear that the engine would take revenge by winding itself up in their skirts.

Gas engines at their best are somewhat noisy, smelly, and oily pieces of machinery (would we could keep them as bright and clear as they are at the motor boat show) and their place is not in the cabin. The best location is under a hatch in the cockpit with the flywheel edge just coming to the cabin bulkhead so as to make cranking convenient. The hatch, which will in most cases take the form of a removable box, should be wide enough to give easy access to the sides of the engine, for inspection or repair. With the engine located in this position, you can, with a little ingenuity, run rods from the timer and throttle to quadrants and thence to control lever on the cabin bulkhead; also put your main switch there and if you are unfortunate enough to have a sight feed oiler, lengthen out the oil leads and put it there, too, where you can watch it. Then, with the clutch handle just behind the hatch you have the finest kind of a "one man" cruiser.

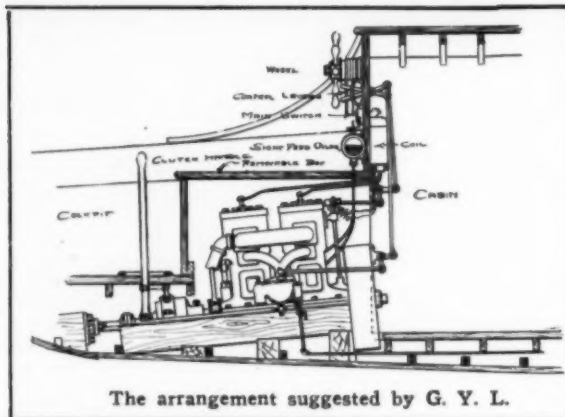
The hatch over the engine, too, is far from being a nuisance. It can be used as a seat, a steersman's seat if his neck is long enough, or if in strange waters, as a chart table, down out of the wind and spray; or if the day's run has been hard and you do not feel like uncoiling the refractory legs of the folding table, use it to serve the dinner on and afterwards wash the dishes there, and finally wonder why the varnish on that engine hatch doesn't last longer.

G. Y. L., Brooklyn, N. Y.

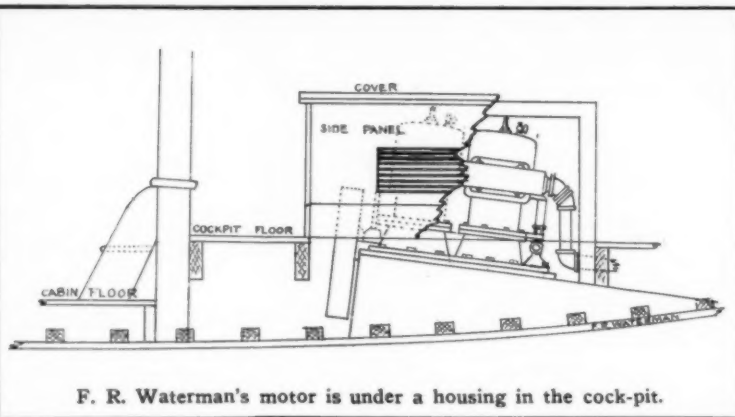
Inside Cabin Best.

IF you are about to install your engine and are considering three points of location, viz.: In the cockpit under a hatch, partly in the cabin or wholly within the cabin, to arrive at a satisfactory decision, you would naturally consider the various good points of each location and weigh one against the other.

The position of my engine, to my mind, has the maximum number of good points, that is, it is located entirely within the cabin just beyond the bulkhead and door.



The arrangement suggested by G. Y. L.



F. R. Waterman's motor is under a housing in the cock-pit.

In discussing this location, would say that the greatest objection to having your engine in the cabin is the heat, but this can be greatly reduced by proper ventilation, and to aid in this, cut a square window in the bulkhead just above the steering wheel. This window should be made of heavy cypress with a plate glass, and can be constructed so as to be removed entirely, when your engine is running. This window being just above the engine, will take off a great quantity of heated air.

In locating your engine inside, you have a maximum protection from theft, meddlers, and the ravages of the weather and spray, and in an instance of a jump-spark engine, the ignition outfit can be placed near the engine with perfect safety from moisture and at the same time reduce the length of the wiring to a great advantage.

To install your engine and outfit so as to have everything compact and of easy access, is a mighty convenient arrangement for the man who operates the motor, for he can remedy or adjust any part without leaving his seat, which is quite a feature when the boat is small and you are crowded for space.

With a little study you can arrange your motor, batteries, coil, clutch, switch, tool rack, etc., so that whoever has charge of the engine will find everything within arms' reach. This condition can be readily appreciated by the one who has to chase all over the boat to locate some small trouble, possibly with the wiring, which could be instantly detected and remedied if his outfit was located as described above.

By locating as near the bulkhead as possible, you increase the room in the cabin and the space on the bulkhead can be utilized to good advantage in hanging up your battery box, tool rack, etc.

This location makes it easy to centralize your power plant in an entirety, having everything necessary to propel the boat within a small radius and the problem of locating trouble is simplified ten times thereby. This point alone should convert a great many, who favor outside location.

Regarding the heat from the motor, it is only objectionable in summer and at that season you do not stay in the cabin except at night and, as a rule, you are at anchor when the bunks are made up.

There is no advantage of outside location that is not more than offset by one or more points in favor of having your engine entirely within the cabin.

F. W. KRACKE, Charleston, S. C.

Prefers Engine Beneath Bridge.

EXPERIENCE has proved to me that the best location, everything considered, for the engine on a small cruiser is under a hatch or bridge in the cockpit, with the flywheel just showing inside the cabin bulkhead.

Following are the reasons:

1. The helmsman in the cockpit can have engine directly accessible at all times—appreciated with only one man aboard.

2. No valuable room is taken up inside of

cabin. It is not in way in cockpit as the box can be used as a seat.

3. All bad odors and heat as well as dirt and grease can be kept out of the small cabin, which is usually hot enough, especially in summer. Yet by opening door in front of engine the cabin can be heated by the exhaust, in cool weather.

4. It is safer—all gas being outside of cabin.

5. It discourages tinkering which is responsible for many of the so-called engine troubles.

6. In bad weather engine can be run from inside of cabin.

7. When engine needs to be overhauled it can be lifted directly out of the boat instead of having to be pried, lifted and shoved through a narrow hatch and doorway.

B. BREWSTER, Washington, D. C.

In Cockpit Under Housing.

THE experience I have had with my cruiser shows me that the best place for the engine is entirely in the cockpit near the bulkhead.

Leave enough space between engine cover and bulkhead to pass between, say, 18 inches. Make a frame around the engine of four 2 in. x 2 in. uprights, one in each corner fastened to the floor timbers. Then fasten a frame around the top to the uprights. Around the bottom of the uprights, and making a watertight joint with the cockpit floor, fasten four pieces of 7/8 in. x 4 in., and beveled on upper edge.

Now make the top cover of one piece with a very slight crown and cover with canvas, leaving an overhang all round.

Then make the four panels to fit into the sides and ends. Each of the panels can have a small slat panel like a blind. This will give circulation of air around the engine. The top and sides can be held in place by buttons. When these are taken off it gives a free and clear space to work on the engine. This box will be handy for a table or seat, and placing the engine here allows you to have the companionway in the center.

Placing the engine at the bulkhead, with the flywheel in the cabin and the engine in the cockpit, is very convenient and out of the way. The only thing I have against it is that one has to step up on the engine box to enter the cabin, if the companionway is in the center.

As to placing the engine in the cabin, I wouldn't think of doing that. There is the smell, heat and noise. It has to be protected even in the cabin to keep children and ladies' dresses from getting caught, or covered with oil.

The engine in my cruiser is at the bulkhead, but if I built another the engine would be in the cockpit.

F. R. WATERMAN, Medford, Mass.

Keep the Cabin Clear.

THE location of an engine will depend partly upon the size of the boat and partly upon the ideas of the owner. In a cruiser it is desirable to keep the cabin as clear as possible, and an engine, if only par-

tially within, is always more or less of a nuisance with its necessary dirt and odors sifting through the living quarters.

If the boat is large enough, and can be arranged so as to give reasonably easy access to the various parts of the engine, entirely under a hatch in the cockpit seems to be the ideal place for it. This location gives the entire cabin space for living and lounging quarters and still the engine is readily reached through the hatch for making ordinary repairs and adjustments.

With the engine under a hatch in the cockpit, it is a good plan to have the gasoline tanks entirely aft of the cabin and the cabin separated from the engine compartment by an airtight bulkhead. This will prevent the gasoline vapor from working along into the cabin and make it perfectly safe to go below and have a quiet smoke, as many of us wish to do, where the wind will not burn out our pipes faster than we can fill them. The engine apartment should be thoroughly ventilated, on which subject some excellent suggestions and drawings were published in *MoToR Boating* a few months ago.

The hatch should be made large enough so that the engine may be raised from its bed through it and taken ashore for repairs on storage. If the boat is of sufficient size the hatch may be made flush with the cockpit floor, otherwise it will be above and may be utilized as a seat or to cut bait upon when fishing, or as a table when the meals are served outside, and it seems as though any loss of space in the cockpit will be more than compensated for by the added comfort of the cabin.

F. M. COMEE, Cambridge, Mass.

Should be Accessible from Cabin.

AS an engine used in a cruiser is usually a medium or heavy-duty engine, it would have considerable weight. If such an engine is placed inside of cabin, you cannot use a tackle of any kind for removing, for repairs or overhauling, and an engine in cabin is disagreeable on account of smell from oil and gasoline.

If the engine were out in center of cockpit, away from cabin, it would be accessible for handling for repairs, but inaccessible when requiring adjustments when out in rough water and flying spray.

I believe engine is best located if placed under a hatch entirely but immediately in rear of cabin bulkhead, so that forward face of flywheel would be just in rear of cabin bulkhead and have a large, practically airtight, bulkhead door over flywheel, rendering engine accessible from cabin in rough weather for adjustments and starting up; also if hatch is built high enough, it can be used as wheelman's seat, with steering wheel on bulkhead, and reverse lever just behind him, and compass on cabin roof or in cabin visible through bulkhead window.

This method does not prevent use of hoisting tackle in moving engine, allows ignition batteries, coils, storage batteries, etc., to be car-

ried in cabin in dry place and also does away with oil and gasoline smell in cabin. Fire and explosion risks in cabin are minimized by this method.

CHARLES E. BORGBOM,
Fort H. G. Wright, N. Y.

Have Motor Accessible.

FROM the engineer's view-point both the engine and clutch are better off when snugly housed below in a well-ventilated cabin with ample elbow room all around for making those emergency repairs which are inseparable from even the highest class power plant. Here the vitals of the boat are perfectly protected from rain and spray, and may be most easily kept in condition to do their best work. With the adoption of modern cockpit or bridge control the entire boat is conveniently under control of the helmsman, making even a good sized cruiser a "one man" boat.

Of course, the apparently ideal method, where room is at a premium, is to utilize the otherwise waste space beneath the cockpit floor and there, under a hatch, to install the entire power plant. If it were never necessary to get at various parts of the motor or clutch in a hurry (with the boat perhaps drifting shoreward or seaward before a brisk breeze in a lumpy sea, and the motor shut down for repairs) this location might really be ideal. The writer has never seen an example of such installation, however, where it was possible to conveniently adjust the clutch, drain or adjust the carburetor, or do any of the numerous everyday stunts about the engine, either with rapidity or comfort. More elaborate repairs than these would usually be hopelessly out of the question. To have such an arrangement

thoroughly practical it would be necessary to have the hatch wide enough to permit the engineer to stand or work comfortably beside his engine in the hatchway, instead of lying on the cockpit floor with head and shoulders hanging over the coaming while making his adjustments upside down by the fitful light of a trouble lamp.

Sometimes good results are obtained by locating the motor proper in engine room or cabin, and allowing the reverse gear to run aft under a bridge deck which affords the necessary headroom for repairs and adjustment of the clutch mechanism from below. Almost invariably an owner is glad of all the room he can obtain around his motor, and rarely begrudges the necessary space, even when it encroaches on his cabin accommodations considerably. An experienced motor boatman appreciates that upon the performance of the engine hinges much of the success of the boat, and he is willing to give it every chance to make good, rather than invite disaster by stowing it away in a dark and limited space where adequate inspection and care are nearly or quite impossible.

ALLAN O. GOOLD, Portland, Me.

The Advantage of All Positions.

I HAVE had to figure out this proposition for my own boat and have decided that the best location for the motor in the average cruiser of between twenty-five and thirty feet is just forward of the cabin bulkhead, with the clutch under a watertight hatch in cockpit floor. Below are a list of the advantages of each position and the correspond-

ing disadvantages, and I believe the result is in favor of the location described above:

1. Engine and clutch in cockpit under a removable box or hatch:

Advantages—(a) Maximum room in cabin. (b) Reduction of noise. (c) Less smell in cabin.

Disadvantages—(a) Least accessible position, if covered as should be for cruiser. (b) If cover removed in rain or with spray flying, motor and wiring get wet. (c) Cannot hear any pounding or other abnormal noise from motor.

2. Engine and clutch entirely within cabin:

Advantages—(a) Maximum accessibility. (b) Protection from wet. (c) Engine can be seen and heard while running.

Disadvantages—(a) In average cruiser with moderate length of cabin, engine will come too far forward and will interfere with berths forward. These should be at least six feet long, and if they are run alongside engine will make conditions too crowded and will take away from accessibility of engine. Unless boat has very long cabin or has very wide beam, forward part of cabin is only practical place for these berths.

3. Engine in cabin, clutch under watertight hatch in cockpit floor:

Advantages—(a) Engine itself has maximum accessibility. (b) Hatch for clutch can be made watertight and at same time easily removable. (c) Engine can be set far enough aft to give room for the berths forward of it.

Disadvantages—(a) Clutch not so accessible as in 2 but can be made so in majority of cases by making hatch plenty large.

From these it will be seen that position 3 gives room for the cabin layout; this is an

(Continued on page 66.)

A Seventy Dollar Speed Boat.

Showing How an Ingenious Motor-Boatman Converted a Rowboat Into a "Hydroplane".
Proving That Speed is Not Necessarily a Very Expensive Luxury.

By John W. Snyder.

THIS is how I happened to meet Hobo and to learn about how she came into existence. One afternoon I was out for a spin with a friend when we noticed coming toward us at incredible speed a small boat under power. In a few moments she had passed us and landed not far away. We at once put in after her expecting, from the speed we had just seen her exhibit, something new in hydroplane construction and high power. Our surprise was tremendous when we noted that a single-cylinder, two-cycle engine, a Du Brie I believe, rated at four horsepower, was responsible for the speed we had seen.

Upon questioning the owner we learned that he had "doped" out the idea the previous spring as follows: He secured an ordinary flat bottom, double-ended row boat, 15 feet long by four feet six inches beam. To this boat he had fitted a wooden keel along the bottom from the center to within about two feet of the stern, and had same fitted with a shaft log. An inside keel of oak, 1 x 5, ran the entire length of the boat. This had been placed in position, first to brace the boat, the keel being bolted through the bottom with the washers and nuts on the inside. Taking out the midship seat, he then

placed an oak rib at this point leaving an open space in which to place his engine bed. The seat next to the stern was next taken out and a rib substituted as before. The stern seat was left as it was, making an excellent bottom for the tool box with locker room underneath.

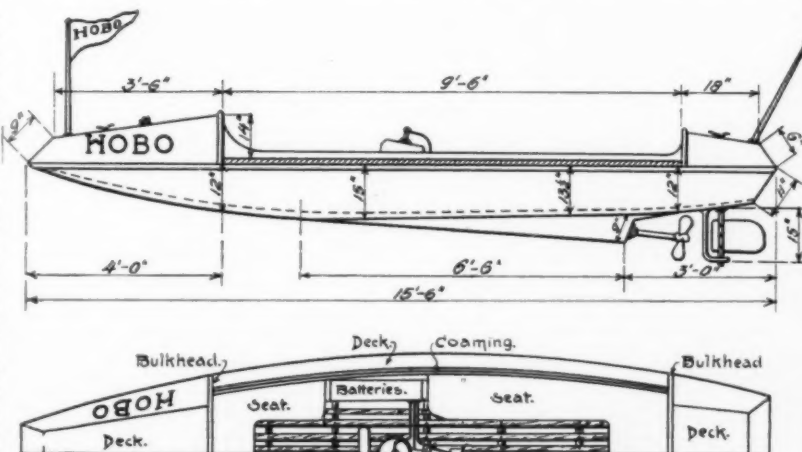
The engine bed is of solid oak and rests on the bottom of the boat. It was not, however, fastened to the bottom of the boat but was bolted to the big oak inside keel, the heads of the bolts coming about three inches either side of the outside keel. The shaft runs in a galvanized pipe with a clearance of about three-quarters of an inch. This pipe, fitted with stuffing box, is kept filled with grease. With

this substantial engine bed there is no perceptible vibration.

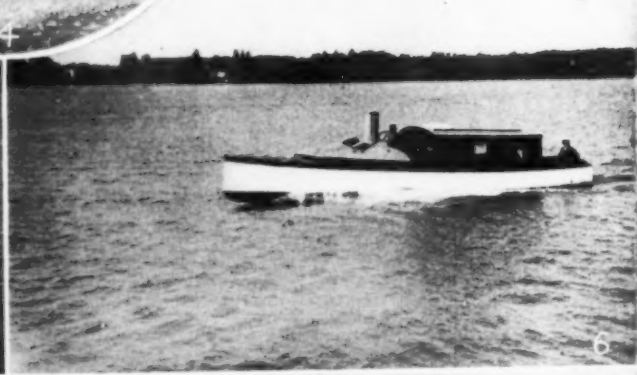
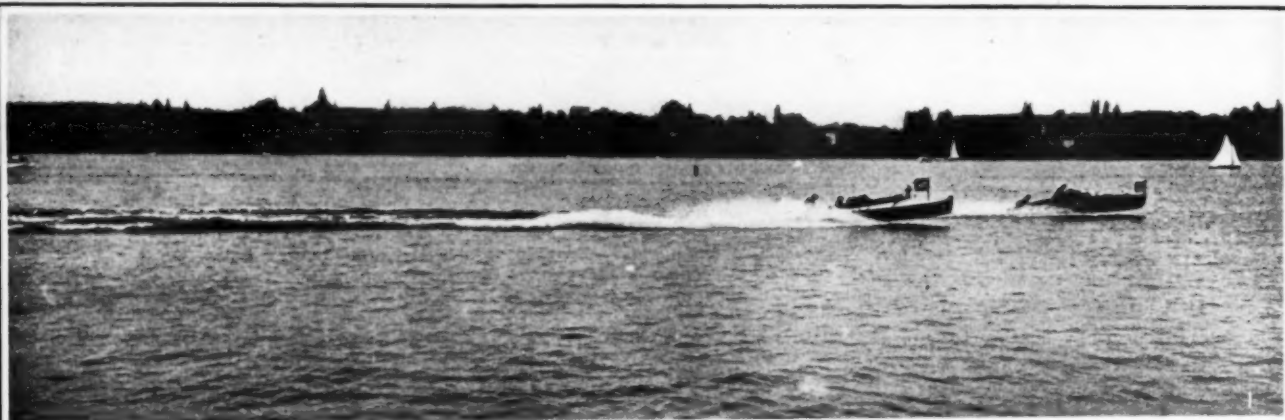
Around the sides of the cockpit a narrow deck was run, and bulkheads of white pine were placed fore and aft. Seats placed at a level of about one inch below the coaming, were a foot wide, thus insuring comfort. They provided accommodation for six persons. The decks were quarter-inch pine, canvas covered, painted red. The high decks fore and aft were made to keep the spray out of the cockpit, but in addition they made excellent lockers of a size large enough to allow the stowage of a generous amount of supplies.

The gasoline tank was placed forward and is of ten-gallon capacity. The fittings are of galvanized iron painted with aluminum paint. The rudder is black iron, painted the same way. A three-bladed wheel was employed, and a steel shaft.

The engine was secured second-hand. It had never been used, however, and with the fittings, tank and piping, was obtained for \$45. The original cost of the hull was \$5. The keels, inside and outside, bulkheads, coaming, decking, canvas, paint and hardware cost this thrifty builder \$20. Oak for the ribs, etc., he obtained from some old crates. The boat therefore cost the owner just \$70.



Hobo was originally an unassuming rowboat.



German speed boats prominent in the past season's racing.

The Germans, while realizing the importance of the hydroplane principle, have done practically nothing in developing the stepped type of hydroplane. The photographs above were taken during the Lake Constance Regatta. 1. Lürssen-Daimler passing Saurer A II. 2 and 5. Saurer A II taken while turning. 3. One of the Saurer boats rounding the stake boat. 4. Lürssen-Daimler turning. 6. The cruiser Marga IV. 7. Saurer A III rounding the stake boat.

Talks With Our Naval Architects.

Fred S. Brinton.

FRED S. BRINTON, of the firm of Lee & Brinton, naval architects, of Seattle, Wash., like a majority of the well-known architects and marine engineers on the Pacific Coast, received his education in the schools and shipyards of the East and was drawn across the continent by the exceptional opportunities afforded in that section of the country.

Mr. Brinton was born in an inland county of Pennsylvania and like many other boys who spend their early days far from the water, developed a hobby for boats and a longing for sails and marine engines. While in his 'teens he attended Germantown Academy at Philadelphia and there had some opportunity to attain his desire for sport on the water and it was only natural that when he had an opportunity to enter the University of Pennsylvania he should specialize in the naval architecture and marine engineering courses. After obtaining his degree and taking a post-graduate course he went to the Crescent shipyards at Elizabeth, N. J., and spent five years there in the drafting room and three years in charge of the mould loft. In 1902 he went to Staten Island with the Marine Construction & Drydock Company, and was outside superintendent of work there. During his connection with that company 125 boats—cruisers, racers and all classes—were turned out and in 1907 he severed his connection there to go to Seattle and in that year the partnership of Lee & Brinton was formed.

Upon starting in on the coast, Mr. Brinton turned his attention to developing a model type of pleasure boat for the Puget Sound waters and with Mr. Lee has been most successful. For a time they built few boats that were not used

for pleasure purposes, but then a newer field opened up and the Far North—the Alaska consumers—has been keeping Lee & Brinton

ing fraternity there he gave to a representative of Motor Boating as follows:

"Each section of the country seems to be developing a type of boat most suited for its individual requirements. Here in the Northwest waters and those of Alaska this tendency is especially marked and the type seems to tend as much towards the comfort of the crew as to the utility of the craft.

"This is well shown among the craft in the halibut fishing fleets. The number of boats in this trade is increasing very fast and today Seattle can claim to be the home port of about 70, most all of good model and every one equipped with a gasoline engine. The sail boat which at one time made up the fleet of halibuters has entirely disappeared and the steamers which replaced the sails will soon, in turn, be replaced by vessels driven by gasoline power. To be sure, sails are found on nearly every member of the fleet, but these are intended to be auxiliary to the engine instead of the engine being auxiliary to the canvas. The power is always installed in such a way as to handle the boats in all kinds of weather and in all seas. The fuel capacity is being increased on every new boat, for the distance that the craft have to go is increasing with each year. At present the tank capacity is sufficient for the boat to make a three weeks' or more trip with the engine constantly running.

"To an old Eastern fisherman the pilot house, which is found on nearly all the fishing and pleasure craft in these and Alaska waters looks much out of place. But as I have already said the comforts of the crew are an

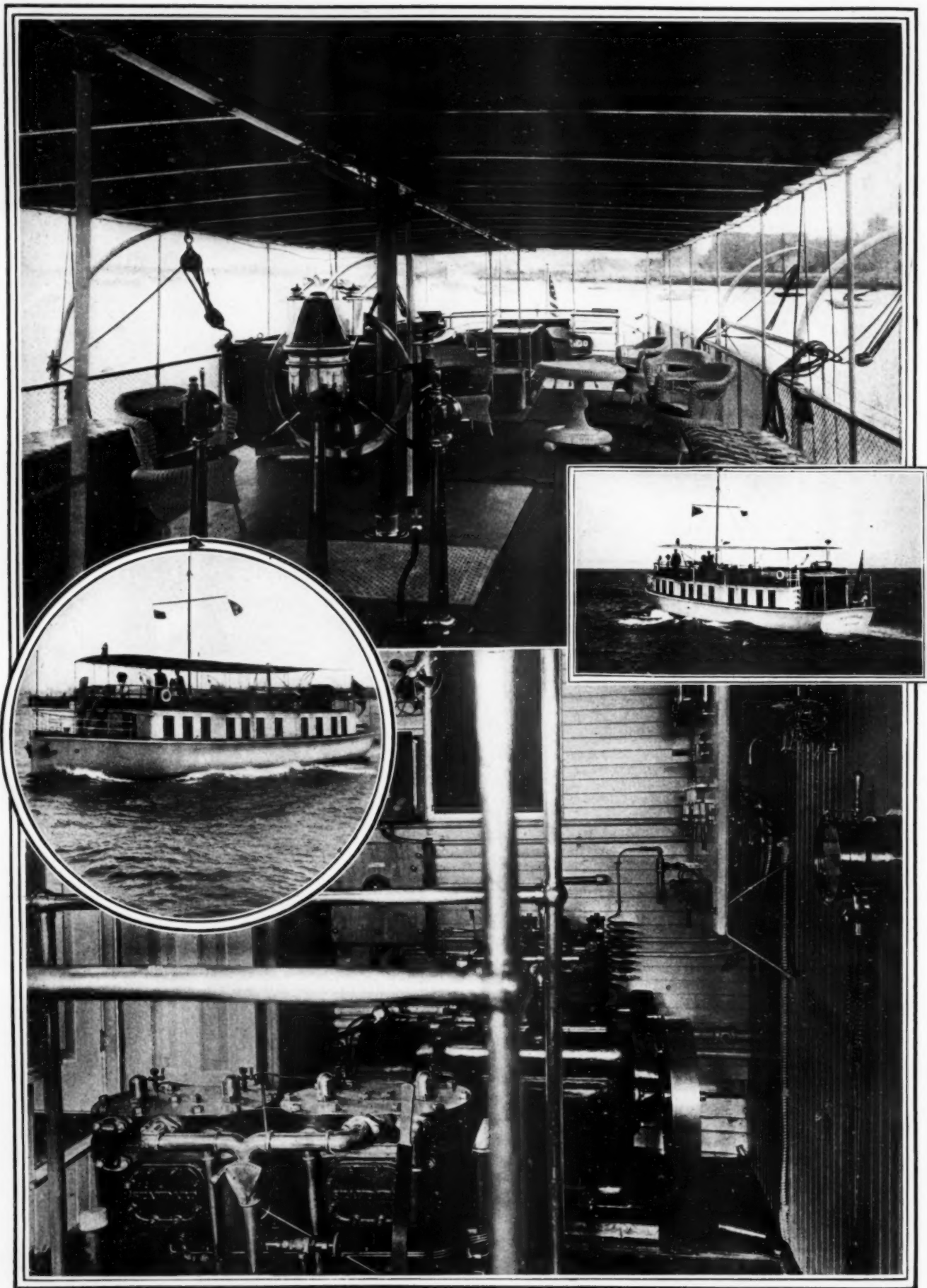


Fred S. Brinton, Naval Architect.

busy ever since. Mr. Brinton has just returned from a tour of the Alaska ports and some of the results of his deductions of the needs of the Alaska field and the motor boat-



The cruising houseboat Lotus anchored in Safety Cove, B. C. She is one of Mr. Brinton's designs.



Marigold, a cruising houseboat. Note the unlimited room available on the cabin roof. She is driven by two 16-20 horsepower Standard engines. The lower photograph shows also the auxiliary electric light plant.

important item in the design and the cold weather in the northern waters makes it almost imperative that the man at the wheel be well protected. In many of the late designs, the vessel is not only steered from the pilot house but the engine is controlled by means of a compressed air system.

The duties, too, of the engineers are gradually being reduced to a minimum. All the latest and best designed engines are air-starting, self-oiling and fitted with governors that can be set so that the engine will run at any

desired speed whether the load is on or off. Connections are also made by worm and gears to winches on the deck so that anchors can be hauled, dories and cargoes raised and sails set with but little effort on the part of the crew.

"On account of the topography of the Alaska coast all power boats, whether work or pleasure craft, should be more highly powered than similar boats for use in other parts of the country. The hills that rise directly from the water to thousands of feet act as a sort of a

funnel which greatly increases the velocity of the wind as it nears the water's surface. Even the large coasting steamers in certain seasons of the year find difficulty in making headway against some of the winds that are accelerated down those long cañons until they reach the velocity of a hurricane. Though most of the fishing is done in the open Pacific, yet most of the smaller craft prefer the waters protected by the small islands, even though they do encounter these strong head winds. And a lot of power is, therefore, necessary."

The Cruising Houseboat Marigold

WHEN power first began to be applied to the houseboat, the particular objection to this type of craft, that of immobility, was moved; but even to-day we are accustomed to think of self-propelling houseboats as unseaworthy and underpowered craft, suitable only for use in quiet inland waters, and only capable of extremely slow speed. A houseboat cruise from Chicago to Georgian Bay and back, covering the entire length of Lake Michigan and a large part of Lake Huron, is therefore a somewhat extraordinary and unusual occurrence for a houseboat, and may almost be regarded as epoch-making.

Such a cruise was made this summer by the 70 ft. cruiser Marigold, owned by Mr. Egbert H. Gold, of Chicago, Ill. The boat was designed by Gielow & Orr, of New York, and was built at Manitowac, Wis. Her length is 69 ft. 8 ins. over-all, 67 ft. 7 ins. along load waterline. Her extreme beam is 16 ft. 10 ins. and her draft but 2 ft. 8 ins. This combination of considerable beam and slight draft is noteworthy, and was desired by the owner in order that he might secure a large amount of room and yet be able to take his floating home into shallow water for gunning. Still another requisite which the designer had to meet, was that of seaworthiness, and to have this with broad beam and slight draft was somewhat of a problem.

Two tunnels for carrying the propeller shafts, helped solve it. The construction is so arranged that in case of the boats grounding,

the propellers will escape injury. How well the desire of the owner in regard to seaworthiness was met will be seen in the trip the boat made from Chicago to Georgian Bay. On this voyage she encountered some very heavy weather, proving herself an extremely able craft, and one in which the owner need have no fear about going out in the heavy weather often encountered on the Great Lakes.

Still another requisite of the owner's was a fair amount of speed. In this respect, her pair of 4-cylinder, 16-20 Standard engines, turning twin screws, filled the bill. On her delivery trip to Chicago of 180 miles, she made 30 miles between two fixed points on shore in 3 hours, 11 minutes, giving her a speed of 9.42 statute miles per hour. The conditions for this run were fair, there being a ten-mile breeze on her port bow, and fairly smooth water.

Up to August 1st she had made 978 miles in 118 hours, 25 minutes, actual running time, counting from the time anchor was weighed till dropped again.

Economy is another feature of Mr. Gold's new boat. On the run of 978 miles already mentioned, she consumed 10 barrels, or 500 gallons of gasoline, about one-half gallon per mile, which, reckoning gasoline at 12 cents per gallon, gives her the very low running figure of 6 cents per mile. This amount of fuel also covers the running of the electric light plant and power tender.

The owner had long cruises in view when he planned the interior arrangement. The liv-

ing quarters are liberal in size, as is also the closet and locker space. The main cabin, at the forward end of the boat, is 13 ft. long, extends the full width of the vessel and is fitted with divans, desk, piano, music cabinet, gun cases, etc.

Immediately aft of the main cabin is the owner's stateroom, bathroom and two guest staterooms, each of these rooms being fitted with berths, divans, bureaus, wash-basins with hot and cold water, and open plumbing. Seventeen feet, fore and aft, is taken up in this way. Next aft come the engine room, galley and crew quarters, occupying 19 ft. fore and aft furnished in the latest and most approved manner. The berths, bureaus and divans in the staterooms and the main saloon are furnished in polished mahogany, while the balance of the interior is of white enamel. The skylights and deck fixtures are of mahogany finished bright.

The Marigold has an electric lighting plant that cost \$1,500. The switchboard and the General Electric generator for electric light will be noticed in one of the photographs, as will also the signaling system from the wheel deck to the engine room, such as is used on ocean liners. Electric lights and electric fans are in every room, while she is heated throughout with a regular car heating plant.

The owner is extremely well pleased with his somewhat original boat, and expects to use her frequently for fall shooting trips on the Mississippi, as well as for extended cruising on the lakes.



Marigold is an example of the new school in houseboat architecture; she is as seaworthy as is consistent with her shallow draft, makes a speed of over nine miles an hour and has a degree of comfort impossible of attainment in a yacht of equal length.

New Motor Boat Designs.

UPON the preceding page are shown the plans of a 55-foot cruising yacht designed by J. Murray Watts, of Philadelphia, for Mr. Geo.

F. Fish, of Trenton, N. J. The keel was laid the first of October. The boat was designed especially for ocean racing under the A. P. B. A. and has 20 square feet of amidship section so as to keep her rating low.

The arrangement below decks includes a stateroom aft, and a very large bathroom, with a full size tub, with access to the stateroom and to the saloon. A broad easy staircase leads to the saloon through the after deck. At the forward end of this saloon is a fireplace and on either side are divans with sideboards and wine lockers next to the galley. The galley is unusually large and has a shipmate stove with the pipe leading up the stack. The floor room in the galley is much greater than usual on a boat of this size and there is a large provision locker and ice chest under the bridge deck.

The engine room is forward of the galley

An Ocean Racer.

and contains a 6-cylinder 36 h.p. Hall engine similar to the one that drove Caliph to victory in the Havana race. On the starboard side of the engine room is a ladder leading to the bridge, a large work-bench and a platform for the auxiliary machinery; this consists of a Richardson generator connected to a Brown motor and having a clutch to operate the bilge and air pumps. On the port side of the engine room is a transom for the crew with a tool locker under and there is a pipe berth for use when another man is carried. Forward of the engine room is a stateroom with a toilet.

The boat is so laid out that the entire deck can be used for passengers. The side decks are 2 feet 6 inches wide in the clear and the main cabin top is built with very little camber so that it can be used as a deck on which steamer chairs can be employed. The bridge deck is very roomy and gives a well protected

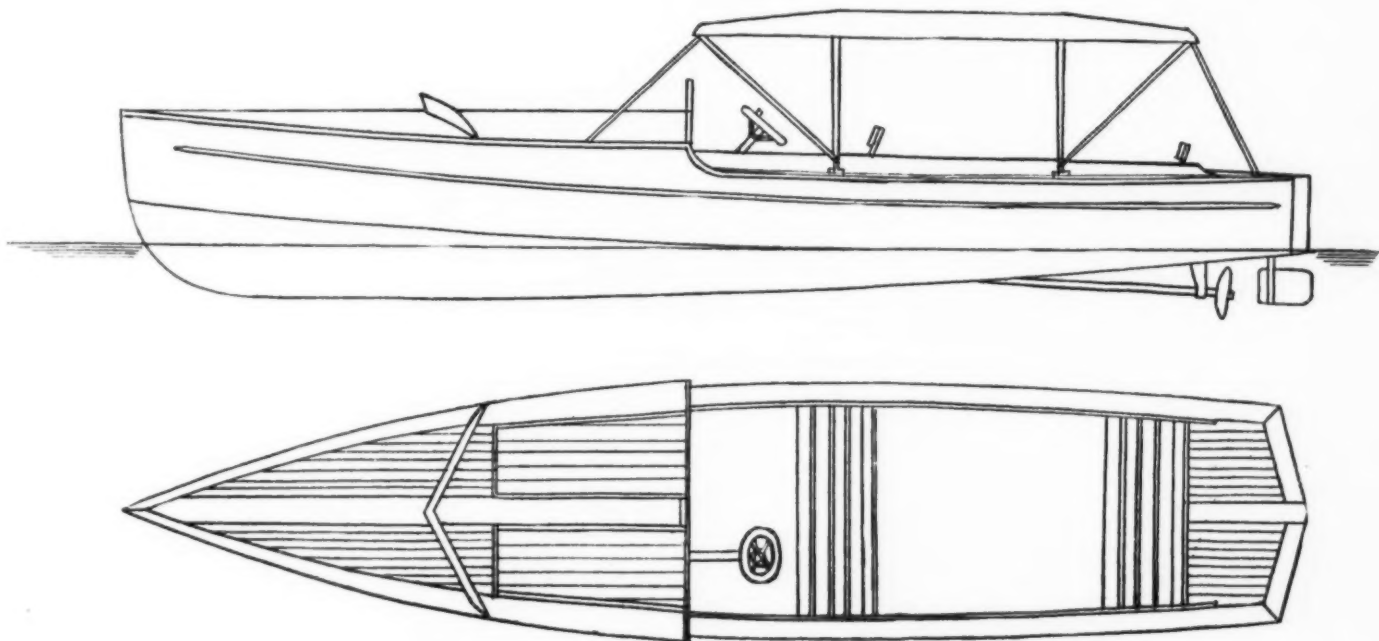
place for the helmsman. As the owner wanted to be able to handle the boat under sail, two heavy spars are stepped, carrying gaff-headed trysails and

staysails. A square yard on the foremast is also fitted to carry a large foresail for running.

There is a tunnel aft for the propeller so that the draft is reduced to a minimum, without reducing seaworthiness. The boat presents a very handsome appearance with a good sheer and well balanced bow and stern. A powerful stack located about amidships takes the smoke pipes from the fireplace and the two pole masts are spaced symmetrically in relation to the stack.

The cabin house is built of Honduras mahogany. The interior joiner work is sycamore finished bright, showing a beautiful grain which is brighter looking than mahogany panel work, and does not have the bare look of white enamel.

The general dimensions of the boat are 55 feet over all, 50 feet water line, 11 feet 6 inches beam, 2 feet 6 inches moulded draft.



A 21-foot, V-bottom express launch built by the M. I. Doyle Company for the president of the Elbridge Engine Company.

A V-Bottom Express Launch.

THE M. I. DOYLE COMPANY, of New York City, have built for Mr. L. J. Seeley, president of the Elbridge Engine Company, an interesting V-bottom express launch, plans of which appear above.

The boat is 21 feet 11 inches long by 5 feet beam and is equipped with a 3-cylinder 30 h.p. Elbridge motor located in an engine compartment forward of amidships. This compartment is also fitted with watertight hatches which are hinged in the center and can be entirely removed so that ready access to the engine can be had at all times. The cockpit is located aft of the engine bulkhead and has seating capacity for six persons. In addition there is room for several camp chairs if desired.

The boat is of the automobile type, having a steering wheel with engine controls on the

wheel and reverse lever located at the operator's right hand. Like boats of this type, the seats extend across the cockpit and face forward. A Kenyon top is added, fitted with side, front and rear curtains.

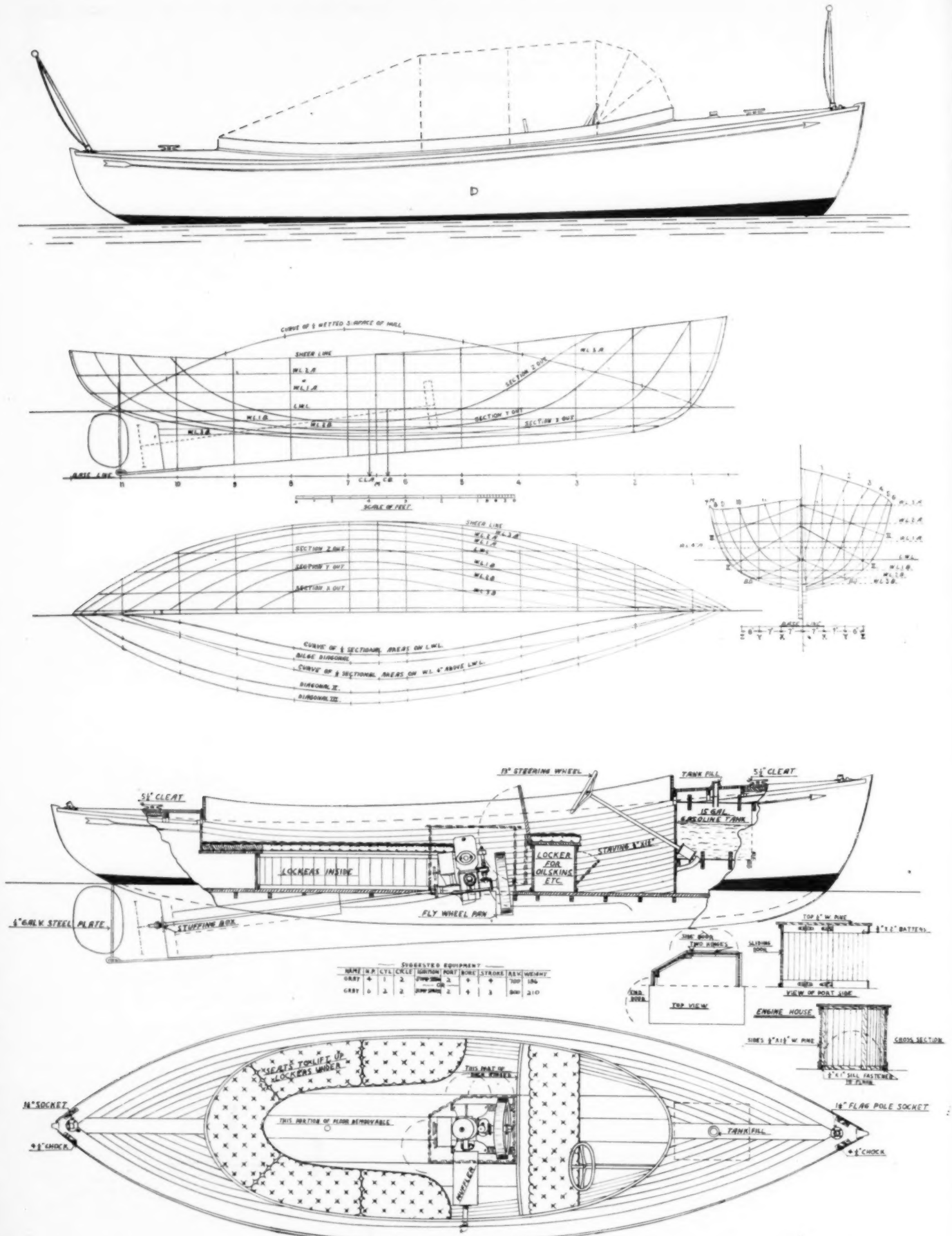
The boat will be used by Mr. Seeley on Lake Ontario and combines seaworthiness as well as speed. The craft can easily maintain a speed of 22 miles per hour.

The rapidity with which the popularity of the speedy small boat has increased is shown by the fact that less than three years ago it was considered almost an impossibility to construct a craft that would make a speed of one mile per hour for every foot of waterline length. Boats of the automobile type are now being constructed which are not only much more comfortable than the boats of a few years ago, but they are good to look at as well and are

useful. Mr. Seeley's boat sacrifices nothing to obtain speed, and it is secured with only a moderate amount of power.

The steering wheel is located at the port side of the craft, leaving room upon the operator's seat for a passenger. The craft is at the same time stable enough to ride upon practically an even keel with but one person aboard, so this placement of the wheel does not interfere with its riding qualities.

The stern is of the transom type so designed as to carry along but very little wave, and with the watertight hatches over the motor, rough water will cause but slight inconvenience. There is sufficient sheer to overcome any ordinary tendency of water to roll into the cockpit at high speeds, and the turtle deck is so long as to make the cockpit an unusually dry one.



Profile, lines, accommodation plan and cockpit arrangement of the 18-foot open launch described upon the following page.

An 18-Foot Open Launch.

UPON the preceding page and below are shown the designs of an 18-foot open launch designed by Charles C. Gager, of 49 Atwater Ave., Derby, Conn., for his own use upon Long Island Sound, being employed principally for short cruises and day trips. The craft is interesting in design and is a very comfortable one, having accommodation for a greater number of people than is usual in a boat of this size.

The boat is of a seaworthy type, as her lines will show, and with her easy lines, good freeboard and flaring bow she should be able to withstand some heavy weather. Her canoe shape stern will prove very serviceable in heavy seas, as the tendency of this shape is to prevent a following wave from breaking over into the cockpit.

The hull is strongly constructed, the stem, keel and frames being of oak with planking of white cedar. The false flooring is of oak to give additional stability to the sections below the water line and the cockpit flooring is of $\frac{3}{8}$ -inch white pine. The keelson and coaming are of oak, while the bilge stringers are of 1-inch by 2-inch spruce, with decks of white pine.

The underbody of the boat is painted dark green with white freeboard and decks and coaming finished bright. The cockpit is surrounded entirely by the coaming, which is of $\frac{5}{8}$ -inch oak and sufficiently high to keep the cockpit dry in ordinarily rough seas. The cockpit is well arranged to afford a large seating capacity and furnishes plenty of locker space. As the plan of the cockpit shows, the seats are arranged to extend around the sides and stern as far forward as the after part of the motor, and the seats are equipped with tops which lift up, allowing locker space underneath.

The steersman is located forward within easy reach of the engine and the wheel, which is of the automobile type, is operated from the starboard side of the boat. The gasoline tank has a capacity of 15 gallons and is lo-

cated just forward of the bulkhead through which the steering column operates.

Under the steersman's seat, which extends across the entire width of the cockpit, is a locker for oilskins, etc., which is reached through a door dropping down at the forward side of the seat. The seat has a back which can be let down to the rear, giving easy access to the motor which is located back of the seat and very close to it. A single-cylinder, 4 h.p. Gray motor has been installed and the entire motor is covered by a removable housing just large enough to include the engine. The motor can be controlled from the seat by reaching to the controls just back of the seat, but these controls can be run to the wheel forward if desired. The wheel is 13 inches in diameter, and although the motor is not located in the forward compartment, complete automobile control can be had if found desirable.

The boat is built sufficiently solid and with the proper lines to take a 6 h.p. 2-cylinder Gray motor but Mr. Gager found the smaller motor sufficient for his needs. The muffler is located at the side of the motor and the exhaust pipe extends from this directly through the side of the boat above the water line at a point about amidships. This eliminates unnecessary piping and consequent back-pressure, and an elbow upon the exhaust pipe at the end turns the steam from the exhaust toward the stern so it will not blow into the cockpit or make unnecessary noise through contact with the water.

The installation of the engine amidships, although perhaps not quite as desirable from some points of view, is the best method for a boat of this size. There is sufficient room in the cockpit and an added amount of stability is secured by placing the motor as low as possible with almost half of the flywheel extending through the flooring.

Aft of the motor the floor of the cockpit is removable, giving access to the bilge so that a pump can be operated easily.

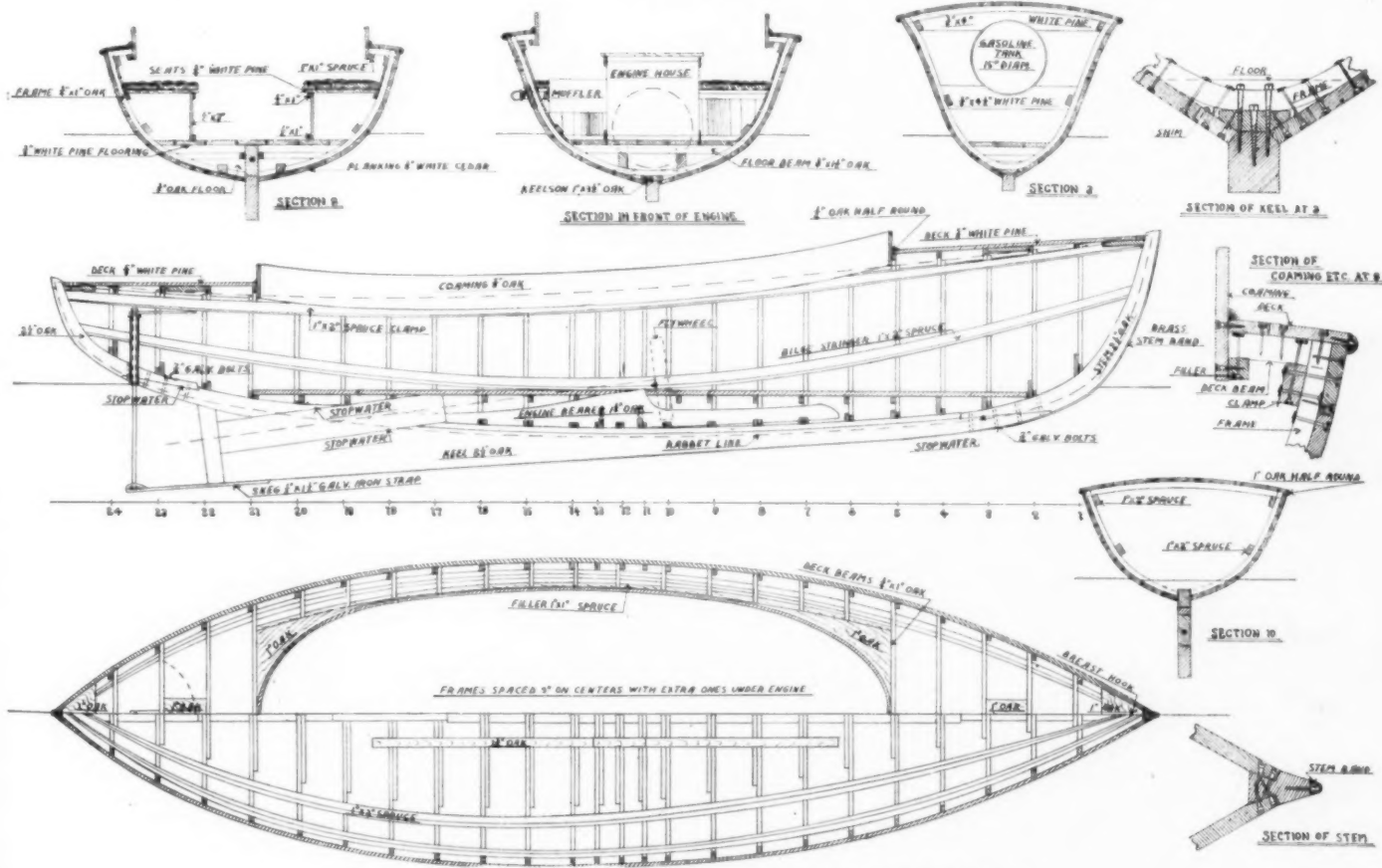
The general dimensions of this boat are: Length over all, 18 feet; extreme beam, 5 feet; extreme draft, 1 foot 9 inches. The displacement is about 1,300 pounds with an added displacement of 1,100 pounds with four inches more draft. The rudder is of $\frac{1}{8}$ -inch galvanized steel plate and the end of the rudder post is connected with the keel by a galvanized iron strap forming a skeg.

The boat which Mr. Gager has designed will prove almost an ideal one for small family-craft. The motor is well arranged in relation to the free cockpit space, and the boat is small enough to be handled easily and yet seaworthy enough to make it prove a safe craft in any but the most extreme weather.

The fact that the engine is housed in gives both added safety and room in the cockpit, since there is no danger from flying oil or grease, and passengers can be seated much nearer the motor without inconvenience. The cover also decreases the noise to a noticeable extent and makes the boat much more attractive as a passenger carrier, a feature worth considering at any time.

The stern is almost a compromise between the regular overhanging type which was so popular before the advent of the motor boat and the transom type. The canoe shape allows a straight-line shaft and gives to the craft the added stability of the dead wood reaching to the point well astern where the propeller shaft extends through. Although perhaps making the boat a trifle more difficult to steer, it will doubtless overcome a slight tendency to roll which is sometimes present in a boat of light draft.

A brass stem is fastened to the bow, and with the clean white lines of the hull and the bright natural wood finish of the decks, the craft presents a very neat appearance. The motor as installed weighs 186 pounds, and the weight of the two-cylinder motor suggested as a heavier equipment is 210 pounds. The single cylinder engine runs at 700 r.p.m. and the two-cylinder at 800 r.p.m.



Sections and details of Mr. Gager's 18-foot launch described above.

A Fast Seventy-Five Foot Cruising Yacht.

ON this page are shown the designs of another craft by the Reliance Motor Boat Company, of New York City. This type of boat has been a logical evolution and the improvement in design has been constant since the type was first constructed about ten years ago.

This boat is an extreme high-speed express yacht, 75 feet long with a beam of 11 feet, and is of the type that has been until quite recently confined solely to steam yacht construction. It combines with high speed, seaworthiness, comfort and unusual cabin accommodations which make the yacht suitable for trips of considerable length.

The main saloon is finished in Mexican mahogany, although bird's-eye maple was used in some of the

designs with pleasing effect. The saloon is situated in the most convenient part of the vessel and is fitted with both toilet and galley on the port and starboard sides respectively. Comfortable and commodious lounges, a sideboard and a buffet complete the equipment of this room.

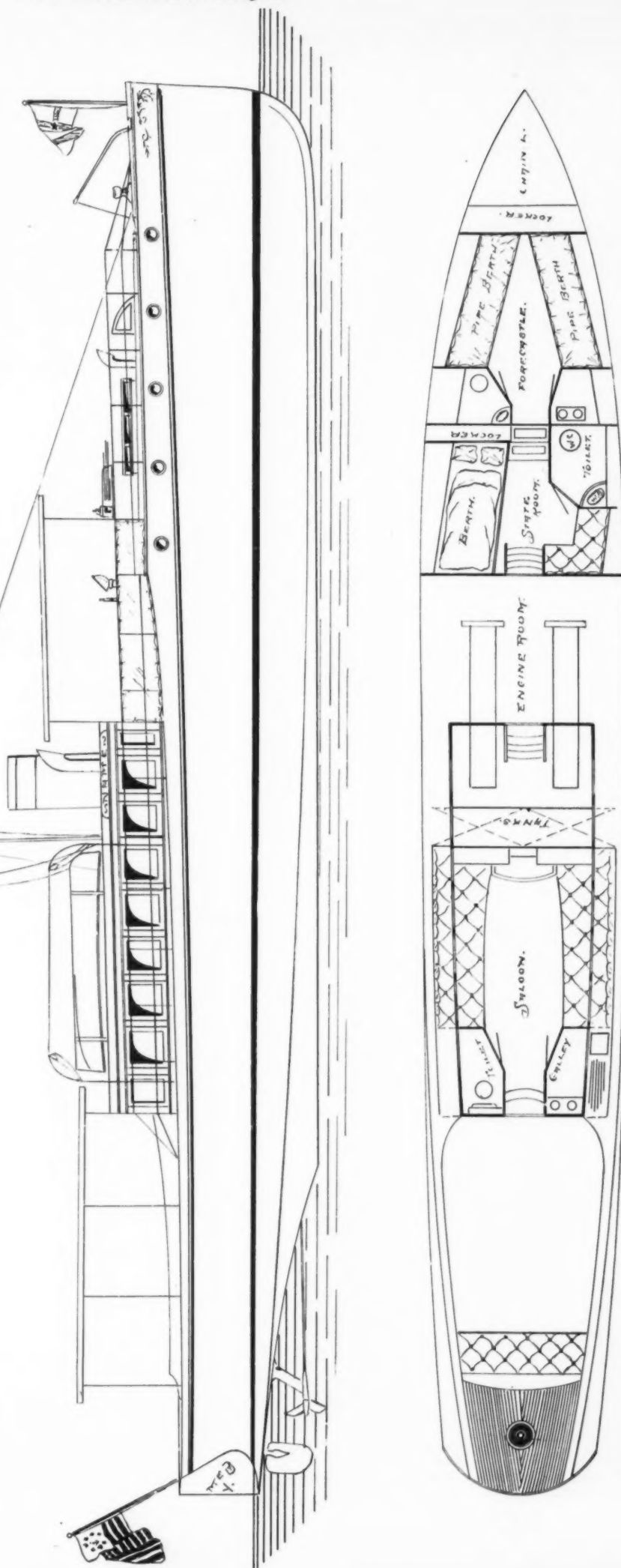
The after portion of the yacht is left in the form of an open cockpit, covered by a removable awning. This cockpit is within easy access of the saloon from which it is reached by a short flight of steps. The

cockpit is fitted with wicker chairs and makes a comfortable lounging place fairly well protected from the wind by the trunk cabin. The deck forward is also fitted as a lounging place by the use of a large bridge providing ample seating capacity for a large party. The craft may be controlled entirely from this bridge.

The owner's stateroom is entered by a staircase leading from the bridge, and is finished in white enamel with mahogany trim. This stateroom contains a large double berth, linen locker, desk and an upholstered settee. Opening from this is a toilet upon the starboard side. The crew's quarters are forward and consist of two pipe berths, a toilet, galley, and a large clothes locker.

The engine is in a compartment by itself, separated from the rest of the boat by watertight bulkheads, also enclosing the fuel tanks. The motor equipment includes two six-cylinder motors of 200 h.p. each which will give the yacht a cruising speed of 26 miles per hour. In the motor compartment is placed also a complete electric light outfit run by an independent gasoline motor of sufficient size to light the entire vessel and operate a powerful searchlight. In connection with this system is a storage battery of sufficient size to operate the lighting system for a number of hours when the motor is not running.

A stack and a cowl by the side ventilate the motor compartment, and the pleasing lines of the craft are further added to by a signal mast placed amidships. A dinghy is carried above the trunk cabin.



This 75-foot cruiser is built upon speedy lines and is an evolution of the fast steam yacht of ten years ago. She is equipped with two powerful motors which give her a cruising speed of 26 m.p.h.

To Montreal and Back Again.

The Story of a Cruise Through the Erie Canal and Lake Ontario and Back Through Lake Champlain. With Practical Suggestions for Making the Trip by Motor Boat in Fifteen Days.

By Athos D. Leveridge.

(Continued from October)

NOBODY and nothing are to be seen in Clayton on Sunday and so we made the short run in the wide, well-buoyed channel through the Islands, down to Alexandria Bay.

We turned into the little bay before reaching the big Thousand Island House and were invited to tie up near several other yachts that lay on each side of a long, narrow pier. The scenery was remarkable as dusk turned to night and electric crosses gleamed out on many of the islands to show that those men of wealth, whose palaces nestled in the rich foliage, had not lost their faith. Some of these residences were outlined with colored lights. Crowds of fashionably dressed folk promenaded along the quays around the bright hotel, or skimmed out over the shimmering water in speed boats. Now and then the Yankee Nabob of some small island would step ashore from his handsome yacht to mingle with the throng, till time should come to return to his tiny realm.

A Mr. Snider, who keeps all kinds of yacht supplies in the cove to the left (looking outward) of the long pier where we lay, was kind enough to secure a copy of "Craig's A. B. C. Key to River St. Lawrence Channels with guide and charts," which though we found later to be somewhat incorrect, was quite sufficient for our needs, and very inexpensive.

Had it not been Sunday there would have been passenger boats in which to tour the maze of islands, both in the afternoon and evening. The fare is but half a dollar and the trip lasts several hours.

Early next morning we left Alexandria Bay and joined the overflowing downward current of the river. We crossed to the Canadian side at Crossover Light after doing about 14 miles, and kept to that shore. The pretty islands were rapidly becoming scarcer ahead, as we passed Brockville, Ont., and on our starboard Ogdensburg, N. Y.

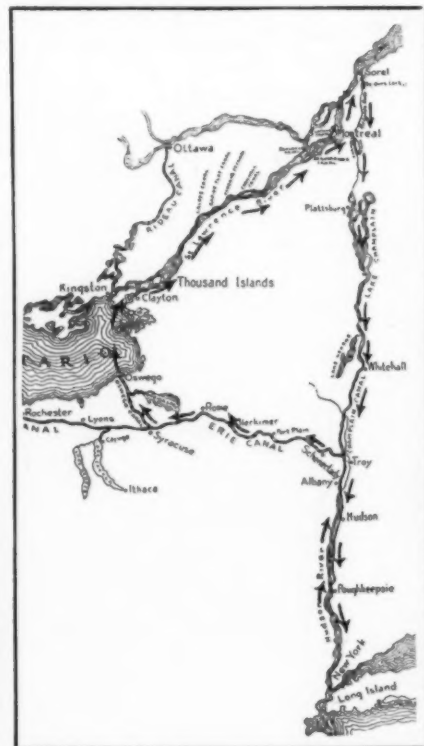
To avoid shooting the Galop Rapids it was necessary to enter an "improved deep waterway channel," but being too near the Canadian shore to make out the entrance we mistook the bay behind Spencer Island for it. It is almost impossible to distinguish this entrance unless to starboard of it, and our first information of being "in wrong" came when we felt the sickening bump-bump of rocks beneath

our keel. Instead of stopping Mr. Captain insisted upon keeping on. We were waved back by some people on the shore and got more



Our compass had gone bad, but by taking the masts of this schooner as a range, we kept our course across Lake Ontario.

bumps before we could stop. The clear water showed the stony bottom plainly, but that can be seen in many good parts of the St. Lawrence.



The course we covered in fifteen days.

rence as the water is so clear that it is used universally for drinking.

A Canuck Indian from the shore paddled out in his rough canoe, and coming aboard, took us back, rounded the long breakwater on our port, giving it a wide berth because of a shoal that continues outward, and then after turning, kept close to its other side. We then saw a similar breakwater ahead of us, a little to starboard, marking the other side of the channel which runs between two islands that look like one from the distance, with one breakwater. The Indian told us that much larger boats than ours had run into their cove by mistake, and he offered his services to shoot all the rapids but the Long Sault with us. We didn't risk it, and after remunerating him we put him ashore on the other side of his island.

We came without difficulty to the first lock of the Galop Canal. This seemed as large as a barge canal lock and was operated by hand. We secured our permit here and continued in the stone-banked canal through Cardinal to Iroquois. Here we got a drenching from a squall, and were delayed by a grouchy, white-whiskered bridge and lock-tender, and again emerged into the St. Lawrence.

Four miles farther, instead of entering the Morrisburg Canal we shot with safety and ease the Rapids du Plat at some thirty miles an hour, and pitched and tossed about in the choppy, foamy waves below them. It's great sport. Twelve miles farther on we did the same stunt with the Farren's Point Rapids. We found them much swifter but easier to shoot. For about a mile we held our breaths as we shot along close to shore, while the engine raced as though running light with open throttle. There were no breakers after these rapids, although we experienced the same sinking sensation as in the Rapids du Plat. To help push us there was almost a gale of wind astern.

At Dickinson's Landing we entered another of these splendid Canadian canals. Their huge locks accommodate even ocean steamers and work by electricity as quickly as the smallest in the States. The tenders are most civil, and your approach is telephoned ahead from each lock so that the bridges, all draws, and the locks are open and waiting for you. We had a splendid view of the wild racing waters of the Long Sault Rapids from this 12-mile canal.



The writer's trick at the wheel. The deck control is a wonderful boon in the navigation of tight places.



A Canuck Indian came aboard at Spencer Island and pointed out the local dangers.



It makes you feel important when the bridges make way for you Where the Oswego Canal meets Lake Ontario, at Oswego, N. Y. as this one did at Syracuse. Anna III is at the left dressed for the locks.

and got into Cornwall, Ont., before nightfall. We tied up in town near an English steamer at 5:30 p. m., had a good supper at the King George Hotel, and provisioned up.

Early on Tuesday morning, July 24th, we left the Cornwall locks behind and after doing about ten miles came to a widening of the river called Coteau Lake. Here the fierce gale then blowing from behind us showed what it could do to the fair St. Lawrence. It reminded us of the English Channel with its choppy, angry, white-capped waves and its entire eight-mile width seemed to be frothing into foam. Everything that was not made good and fast went overboard, but when our heavy Cape Cod anchor tore the end of the low rail loose and went over, we decided to put into a populated cove on our starboard. This side was no longer United States but the Province of Quebec, and we tied up in the lee of a pier, alongside a big freighter that had given up the struggle earlier that day.

The town was St. Anicet, Que., about 24 miles from Cornwall and 45 miles from Montreal. St. Anicet is famous only for its big church, and with the use of French and English we were able to get enough to eat. The country round was fine, but the town itself seemed anything but prosperous. The only product seemed to be a few pigs. Not a chicken, steak or chop could be bought, raw or cooked. We played the Victor while the chilly wind howled through the halyards and flapped the tarpaulins on deck.

The storm having abated at 5 a. m., next morning, we again went into the swift current and made the ten miles to the Soulanges Canal in quick time through Lake St. Francis, another wide part of the river. From this lake we had caught a faint view of the distant Adirondacks to southward. The fine Soulanges Canal is about 14 miles long with five locks, and affords good views of the Coteau, Cedar, Split Rock and Cascade Rapids, which it enables you to evade. It empties through three locks together, of 24 feet descent each, into the St. Lawrence at the mouth of the brown Ottawa River. We continued on into the broad Lachine Lake, formed by the confluence of these two great rivers, and sighted Mt. Royal in the distance. Following our buoys, lightships and range-lights for some ten miles got with absolute ease into the Lachine Canal at 11 a. m.

We mistook the big basin to port with its many cruisers and motor boats for the entrance and had to return and enter to starboard of the middle breakwater. We passed through the town of Lachine and, after doing another ten miles with three locks, tied up near Black's Bridge in the R. & O. Basin, Montreal, the big "City of

Churches," at 12:30 o'clock midday, Wednesday, July 26th.

At 5:30 next morning we passed the locks and getting into the terrific current of the harbor, left Montreal under its perpetual haze of soft coal smoke, without which the view from Mount Royal would be unsurpassed. We made the 50 miles N. E. to Sorel by about

10:30 a. m., going through the quaint Acadian scenery as in a dream. The buoys and range-lights had to be followed with the utmost care, however, for there were both middleground and rocks near the channel, and careless courses are apt to land one on them. We kept toward the center of the river when near Sorel, and did not turn until its two range-lights were in line. We then made for the eastern shore of the Richelieu River and left the St. Lawrence for good.

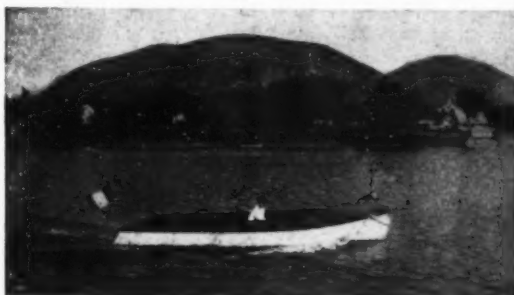
Sorel, Que., is a pretty, quiet, French-Canadian town where nothing goes faster than a walk, and English is ignored. We bought sweet corn, meat, etc., for Alice to cook, and started south at about noon. The river looked more like a canal, and we kept to its center heedless of the range-targets we saw at frequent intervals, as there was plenty of water for our draft. Nine miles from Sorel, however, we ran on some middleground and had work getting off. This was on our starboard just before reaching a creek. We then kept more to port and after passing the creek had to go to starboard again to avoid more of this stuff as we could see the grass even above the water.

We came shortly within view of an island, with a dam on one side, and a lock on the port. This took half an hour to fill, being 200 x 38 ft., and is at the town of St. Ours. We were given a shower of peanuts by some pretty French-speaking Canadian girls, and be sure we were glad of our linguistic accomplishments then for we were able to enjoy the encounter.

After leaving St. Ours Lock we had to follow closely the buoys marking the channel, and 4½ miles farther, near St. Denis, passed to starboard of two islands. The river was a little wider and the scenery becoming more and more beautiful, while we passed several motor boats.

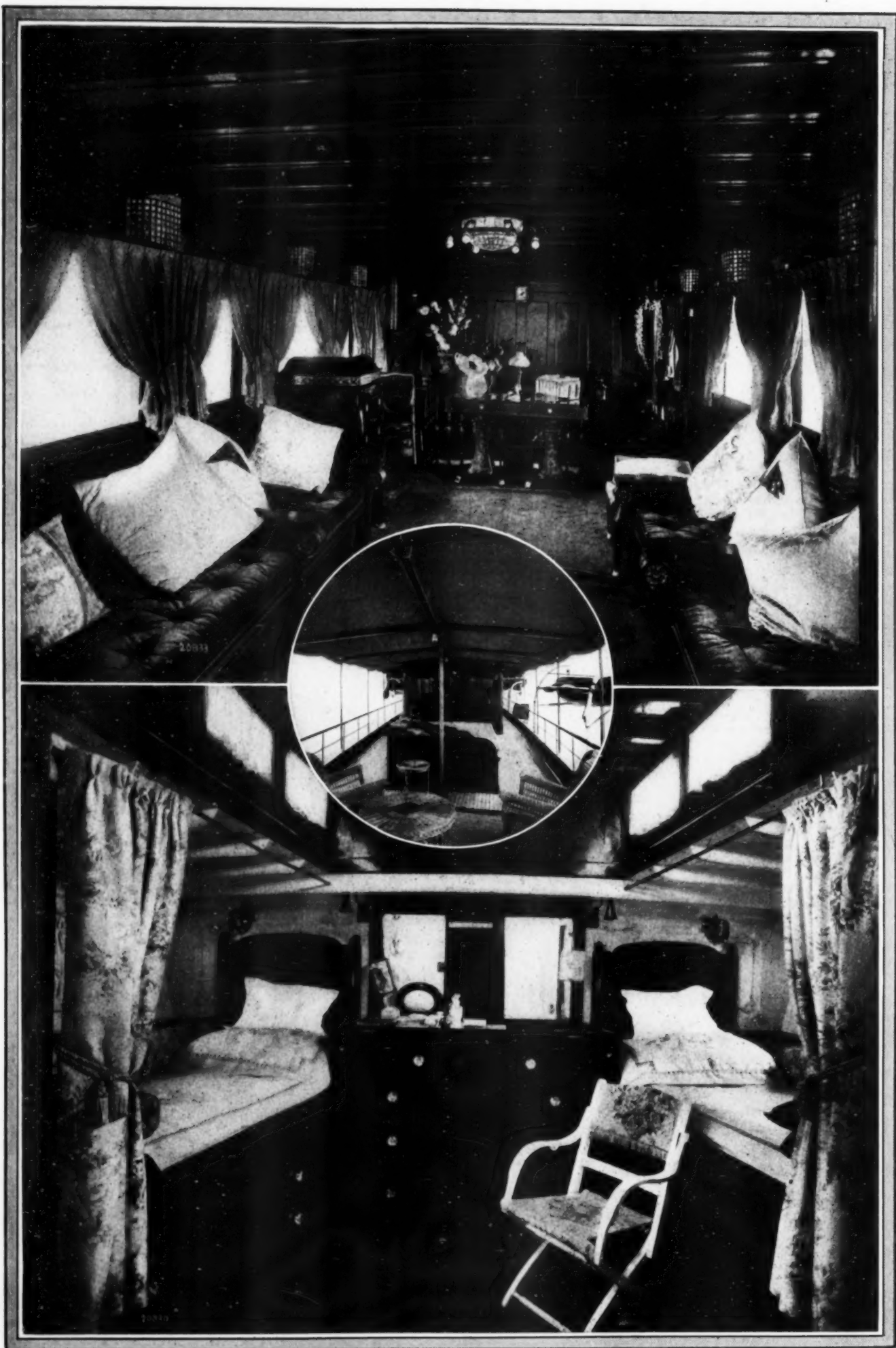
About seven miles farther we found St. Charles to port and St. Mark on the right. Quaint, flat-bottomed ferryboats, as on the canals of Holland, plied between these towns and on other parts of this stream, and were propelled by a man pulling at a cable fastened to either shore and sank to the riverbed after being used.

We could see Beloit Mountain on our port way ahead, and after a little more than an hour's entrancing scenery we sailed between Beloit to starboard and lovely St. Hilaire on our port. The solitary mount stood guard against the cold northeast in lofty grandeur, and made a handsome background for the most heart-warming spot we had thus far seen. Passing the Grand Trunk Draw-
(Continued on page 62.)



Landmarks.

1. Beloit Mt. rising behind quaint old St. Hilaire.
2. The usual line of canal-boats in Chambly basin, waiting their turns to lock through.
3. A sunken steamer in the Richelieu River near Sorel.
4. The excellent Canadian locks make an American blush.

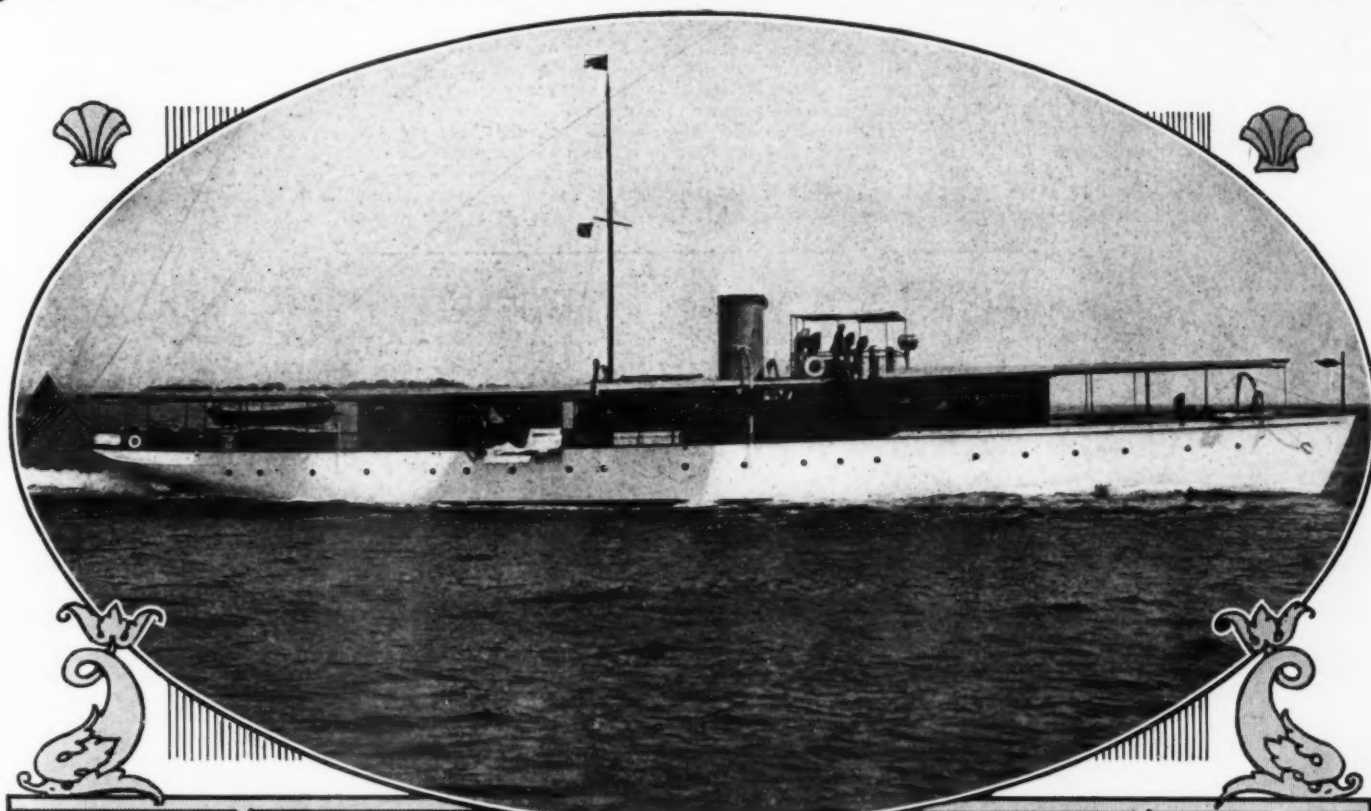


How Josephine looks on the inside.

The upper photograph is of the after deck house, the social centre of the boat. The money spent in the carving and fixtures for this saloon would buy several small cruisers.

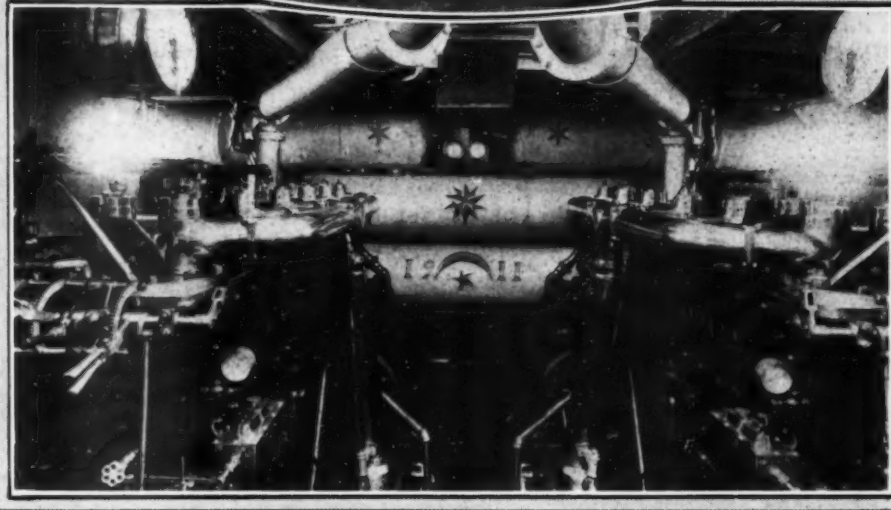
The lower view is of the owner's state-room which is finished in mahogany and white enamel. Note the excellent lighting of this room obtained by both the port lights and the windows in the cabin trunk.

JOSEPHINE, THE 138-FOOTER.



ONE of the largest motor yachts constructed during the past season, in fact, until La Belle was launched, the largest motor yacht in this country, was completed at the yards of Robert Jacob, City Island, N. Y., early in the year. She is the power yacht Josephine, designed for Mr. Edward Shearson, N. Y. Y. C., by William Gardner, naval architect, of New York City. Her dimensions are notable because of her size: 138 ft. over-all, 17 ft. beam and 4 ft. 3 ins. draft. The best of construction was used throughout. The hull is of high tensile steel and is divided into six watertight compartments by five steel bulkheads, extending from keel to deck.

Josephine has twin screws and her propelling power consists of two six-cylinder, air starting and air reversing Standard gasoline engines, which have a combined horsepower of 600, giving a speed of about twenty miles an hour. The lower illustration on this page effectively shows her power plant. The signaling dials, one for each engine, will be seen above them, directly over the controls. On the bulkhead forward of the engine room are ranged a number of compressed air tanks. She is supplied with a General Electric generating plant, and a special combined air pump and bilge pump. The dynamo provides electricity for lighting the yacht, and for the 5,000 candle-power searchlight. She has also an electric



Josephine is a typical example of the motor yacht—a new development, in lines unlike the steam yacht—and she and Thelma, another 138-footer, are the largest of this type. The interior of the engine-room shows the two 300 h.p. Standard engines. The tanks on the bulkhead are for the compressed air used in starting and reversing the engine. An explanation of the "signs of the Zodiac" on these tanks might be that the engineer is a mystic.

windlass for hoisting anchors and boats, electric pumps for sanitary service and a large storage battery.

The engine room is also provided with two very sensitive gasoline meters, one being connected to the auxiliaries and the other to the main engines. From these a very accurate record of the gasoline consumption is kept.

She is of the flush-deck type. The deck is of selected white pine with teak waterways and rails, and mahogany houses and skylights. All metal fittings on the deck are of non-corrosive white bronze. The interior appointments of Josephine are in keeping with the rest of her furnishings and construction, and admit of a maximum amount of comfort and luxury. Forward there is a large galley, a very large ice-box holding some two tons of ice, a large and comfortable messroom and individual staterooms for captain, engineer and steward.

Forward of the officers' quarters and separated by watertight bulkhead, is a roomy fore-castle for the crew.

The owner's stateroom is directly aft of the fuel tanks section, extending the full width of the boat and 10 ft. long, with two stationary berths, a connecting bath, and all modern fittings. The elegance of the saloon and owner's stateroom will immediately be seen on looking at the photographs.

Aft of the owner's quarters are a lobby and passageway with companion way to the upper deck stateroom. The guests' quarters consist of two large double staterooms and one single stateroom, together with two baths and commodious trunk-room. The joiner-work below is Colonial with full length panels and is finished in imported white Holland enamel. The furniture is mahogany throughout, with carved head and footboards, and mirror frames. All the rooms have side ports and overhead skylights, insuring perfect ventilation. There are two deckhouses, the after one being 20 ft. long and 10 ft. wide. This room is Empire style and is finished in African mahogany. The capitals and bases of the pilasters are of bronze, finished in verd antique, as are also the electric fixtures. The arms of the fixed seats, bookcases, writing table, and the saloon table are all very elaborately carved, as will be seen by the photograph.

The forward house is 27 ft. long, and con-

tains dining saloon and pantry. The dining-room accommodates fourteen people at the table. This room is finished in tiger wood and is very handsomely carved, the style being Renaissance. The after deck-house is finished in mahogany, and is also handsomely carved.

The boat equipment consists of a very light, strong and fast 24-foot launch, with a special 25-horsepower, high speed Murray & Tregurtha engine, an 18-foot roomy market launch, and a 14-foot dinghy. These boats are all finished in mahogany and were specially designed

for the purpose for which they are used.

Already Josephine has logged something over six thousand miles, having been in cruising service almost continuously since she was delivered to her owner. She went South immediately after her delivery, making most of her passage outside. On this trip, she encountered numerous gales and her behavior in a seaway was given an excellent try-out with extremely satisfactory results. After her return for the North she fitted out for the summer, and has been in constant use since, having cruised all the past summer.

Josephine furnishes yet another example of the growing popularity of large sea-going yachts, powered with gasoline motors, and the waning popularity of the conventional steam yacht of like size. The reduction of space taken by the engine, the elimination of boilers and coal bunkers, and therefore the greater amount of cleanliness, were chiefly responsible for this change. Added to this the fact that the reliability of the large gasoline engine is now conceded to be practically on a par with that of the marine steam engine, and another reason is added to those mentioned.

Veteran Diesel-Driven Ships.

Foreign Vessels Whose Every-day Service is a Convincing Argument for the Internal Combustion Motor. The Two-Stroke Polar-Diesel Engine and How it Works.

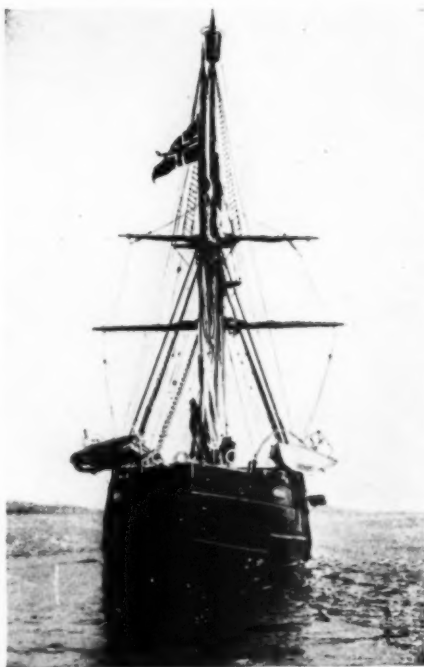
By J. Rendell Wilson.

THERE are quite a large number of Diesel-engined ships in actual service of which the general public has never heard anything more than indefinite rumors, and in some instances not even the latter. As an example I wonder how many are aware that Dr. Nansen's old Polar exploration vessel, *Fram*, had her steam engines removed and replaced with a 180 h.p. Diesel motor before starting with the Amundsen expedition to the South Pole.

Although there are a goodly number of Diesel-engined ships on the water, there can be little doubt that the development in this field has been retarded by non-publicity during recent years, and yet many Continental and British engine and ship owners, especially Britishers, still refuse to divulge information. Owing to this mistaken policy, the public and steamship owners know little of the great strides that the marine crude-oil consuming engine has made.

In recent issues of *MoToR BoatinG* I have been enabled to give some exclusive revelations, and I am now able to supplement this with illustrations and details of four Diesel vessels that have unobtrusively been in service for over twelve months, so that they may well be termed veterans, considering that the industry is regarded as being in its infancy. Each of these vessels has been very successful and has given the greatest satisfaction to the different owners.

The installation of *Fram*'s engine was completed in April of last year, and she has al-



Dr. Nansen's Polar exploration vessel, *Fram*, had her steam power plant replaced with a 180 h.p. Diesel motor before starting in quest of the South Pole.

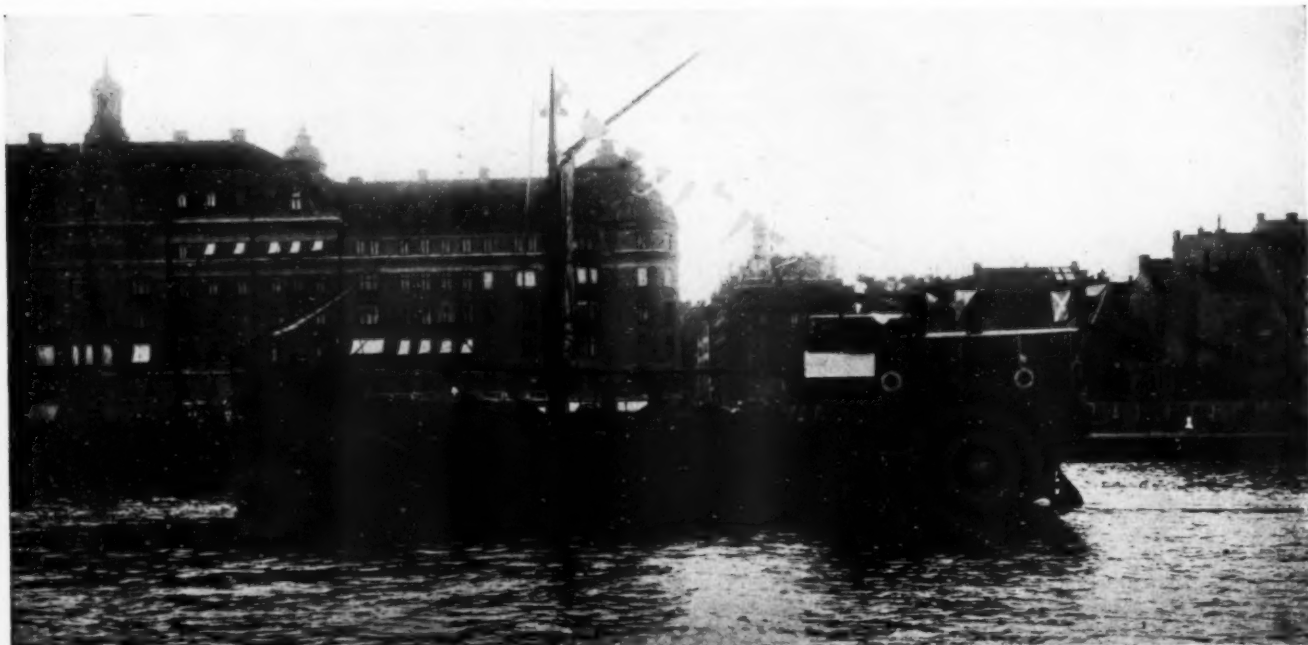
ready made a cruise from Christiania to the South Polar regions, and back to Buenos Aires without a single breakdown of her machinery. It will be remembered that for six months all trace of her was lost and it was believed that she had sunk with all hands while en route for the North Pole, when a British expedition to their great surprise found her safe and sound in the Antarctic. The reason of her disappearance was that she was enabled with her new power plant to carry enough fuel for several years of intermittent service and thus she was able to make a six months' cruise without calling at any port for fuel.

She is a vessel of but 380 tons and originally 100 tons of her capacity was given over to her coal bunkers. Weight for weight with coal her oil fuel consumption is but one-fourth, so it will be seen that this long voyage would have been impossible with her original steam machinery.

Her present engine was supplied by the Aktiebolaget Diesel Motorer of Stockholm and 180 h.p. is developed at 280 r.p.m. on the two-cycle principle. There are six cylinders, four working and two maneuvering. The engine is similar to the two engines of *Toiler*, and the two engines of *Jakut*, therefore there is no need to redescribe it.

Two vessels of considerable interest are the sister ships, *Rapp* and *Snapp*, which have made many successful voyages. As both boats are exactly alike the same description applies, and I will merely describe and illustrate *Rapp*.

Rapp was built by Messrs. Ose Mek Verk-



Rapp is one of two sister ships of a class that is proving the desirability of the Diesel type engine. She is equipped with a two-stroke Polar-Diesel of 110-h.p.



The ice breaking tug Jakut, of St. Petersburg, has convinced the Russian authorities that the Diesel engine is best for their new ice breaker.

stad, of Oscarshamn, in 1908 and was engined by the Aktiebolaget Diesels Motorer, of Stockholm. She is about 104 feet in length by 23 feet beam and has a draught of 11 feet on a dead-weight capacity of 350 tons. A six-cylinder reversible Polar-Diesel engine of the two-cycle type, having four working cylinders $8\frac{1}{4}$ -inch bore by $10\frac{3}{4}$ -inch stroke, and two maneuvering cylinders is installed. On a fuel consumption of .48 lbs. of residue oil per effective b.h.p. per hour 110 h.p. is developed at 250 r.p.m. This is sufficient to give the vessel a loaded speed of 6 to 7 knots or 8 knots when running light. A few details of the working principles will perhaps be of interest.

Starting and reversing are accomplished by admitting compressed air to the two maneuvering cylinders from the compressors, which are arranged at the fore end of the engine. After a few revolutions the working cylinders take up the load, and the maneuvering cylinders then run idly. The air in the working cylinders is compressed by the pistons to 500 lbs. per square inch, and, at the top of the stroke, fuel is injected through a valve in the center of the cylinder head, which valve is actuated by a rocker arm at 750 lbs. per square inch, combustion taking place instantly. The rocker arm is worked by a cam fixed on an overhead camshaft driven by two worm-gears and a vertical intermediate shaft off the camshaft. On the bottom of the down-stroke the cylinders are scavenged by air from the second stage compressor, also driven off the forward end of the engine. In addition to this engine there is an auxiliary Bolinders motor of 15 h.p., which works two four-ton winches.

Among the recent voyages made by Rapp may be mentioned from Fraserburgh, Scotland, to Reval, with 2,010 barrels of herrings; from Drammen to Bremen with 359 tons of stone; from Emden to Otterbach with 265 tons of coke; from Libau to Vesteras with 271 tons of oats; from Kopmanbro to Methil with 339 tons of wood-pulp; from Hamburg to Karlstad with 267 tons of coffee; from Høllerup to Kalmar with 1,515 barrels of kerosene; and from Libau to

Skjelskor with 10,065 cubic feet of timber. One of her advantages over steam will be apparent from the above as it would be impossible for a steamship of her length and tonnage to carry the same amount of cargo with safety. Besides she carries the cargo with greatly reduced running and maintenance costs. In addition she has a saloon for passengers.

There are two oil fuel tanks having a capacity of 15 tons, and there are two water ballast tanks, one of 22 tons forward, and the other of 21 tons aft. The hold, which is bulkheaded off, has a capacity of 430 cubic meters.

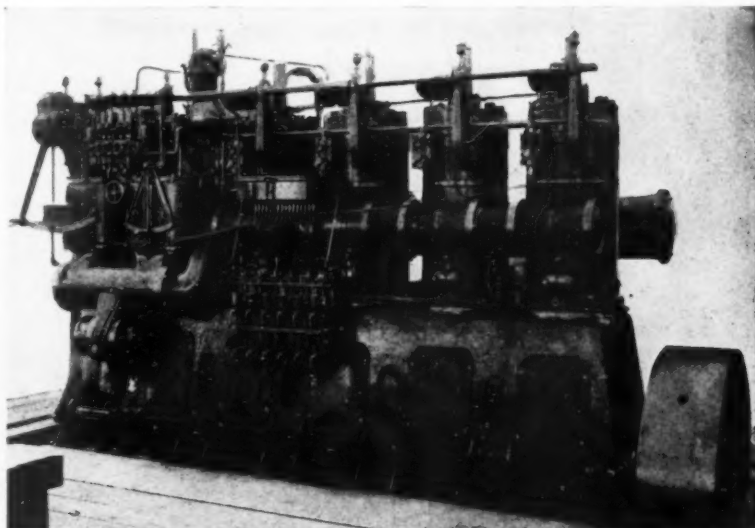
Another successful boat, which has been running for a long period is Jakut, a large and powerful tug-boat and ice-breaker owned by Messrs. Nobel Bros. Naphta Co., of St. Petersburg and Astrakhan, who own several big motor ships trading on the Volga and Caspian Sea. Her main propulsive power is two four-cylinder Polar-Diesel motors, also constructed by the Aktiebolaget Diesels Motorer, of Stockholm, each developing 160 h.p. at 240 r.p.m. on the two-cycle principle. The auxiliary machinery is driven by a single-cylinder crude oil engine, at the after end of the engine room. Before me is a copy of a letter from the two managers of Messrs. Nobel Bros., which certifies that the two Polar-Diesel engines of

Jakut have been entirely satisfactory, being very steady and reliable. Such excellent work has the boat accomplished that the Russian Road and Navigation Authorities have decided to install Diesel engines in their new ice-breaker. In November, 1910, the vessel Merkurjefska Karavan was fast in the ice. Jakut and a steam ice-breaker put out together to her aid from Astrakhan, and after extricating the powerless vessel returned together to port. Although the lion's share of the work fell to Jakut her fuel consumption was but a small fraction of that of the steam vessel.

An engine of this type, but rather smaller has recently been ordered from the Aktiebolaget Diesels Motorer Co. by Mr. H. G. Klusener, shipbroker, Rotterdam, the trials of which took place under the personal supervision of Mr. Hugo Anderson, engineer surveyor to the Swedish Bureau Veritas. There are four working cylinders, 215 mm. bore by 320 mm. stroke. The test sheet, which I have before me states that when running with a normal load the indicated horsepower was 167 and the brake horsepower developed was 122.4 at 306 revolutions per minute, on a fuel consumption of 211 grammes per b.h.p. per hour of Solar residue oil, the test lasting 30 minutes. For the indicated horsepower developed, the fuel consumption was 155 grammes per

h.p. per hour. It is of interest to learn that the mechanical efficiency of the engine was 73 per cent. On an overload of 13 per cent. 136 b.h.p. was developed at 320 r.p.m. for 15 minutes, and no signs of smoke were observed at the exhaust pipe, combustion therefore being perfect. Reversing trials were also satisfactorily carried out. Before long we hope to give illustrations of other Diesel-engined ships fitted by this enterprising Swedish firm.

Over a dozen successful voyages have been made by the full-powered Diesel ship Cornelius, which was built by Messrs. J. Myers Shipbuilding Co., of Zaltbommel, Holland, for Mr. J. Van Rompu, of Terneuzen, while her machinery was constructed by the Nederlandsche Fabriek van Werktuigen En Spoorweg-Materieel, Amsterdam. She is 154



A four-cylinder, two-stroke Polar-Diesel engine. While in construction a six-cylinder engine, there are but four working cylinders, the two forward ones being used merely for starting and reversing on compressed air furnished by the compressors shown in the photograph.

ft. long by 22 ft. beam, with 12½ ft. moulded depth, and was built to Lloyds 100 A-1 class. She is driven by a four-cylinder Werkspoor Diesel motor, 18 in. bore by 19½ in. stroke, working at 240 r.p.m.

Vulcanus, the 1,500-ton tank motor ship, owned by the Anglo-Saxon Petroleum Co., it may be remembered, is equipped with a 500 h.p. Werkspoor engine. Unlike the majority of Diesel engines there is no solidly-enclosed crankcase; but the cylinders are mounted on steel standards, fitted with metal plates, which are easily removable. This arrangement allows of the pistons and crankshaft being removed without disturbing the cylinders or valve gear. For fuel injection starting, and maneuvering, the necessary compressed air is supplied by a two-stage compressor driven off the forward end of the crankshaft, the air being stored in steel bottles arranged on the engine room bulkhead.

It has been found that propeller-racing in rough weather can be eliminated by fitting a heavy flywheel, which prevents the engines picking up excessive speed before the stern of the ship settles back into the water after having been raised by a big following sea.

The electric lighting plant and electrical deck winches are driven by a single 30 h.p. auxiliary engine, also of the Diesel type. Fuel to the extent of nearly 60 tons is carried, which is sufficient for over 30 days of 24 hours running at full speed, which, by the way, is close on 8 knots.

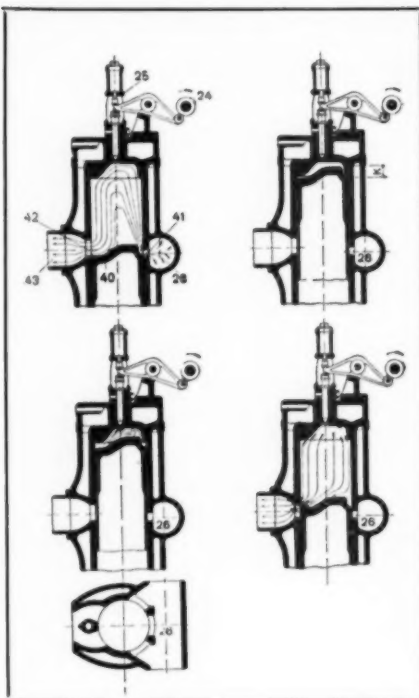


Diagram of the working cycle of the Polar-Diesel engine.

The Two-Stroke Polar-Diesel.

THE sectional drawings shown at the left give a remarkably clear idea of the working cycle of the two-stroke Polar-Diesel engine. There is really no reason why engines of this type should not be of the two-stroke cycle (i. e., every down stroke a working stroke) as the fuel is injected separately, which permits a thorough scavenging of the burnt gases by compressed air without the dangers of fuel waste.

The first view shows the piston at the lower extremity of its stroke, and the cylinder being scavenged by air under pressure. In the second view, the piston has reached the top of its stroke. Note the exceptionally small compression space. This is necessary to obtain sufficient pressure and consequently sufficient heat to ignite the fuel without any special ignition apparatus.

The fuel is injected at 750 lbs. per square inch, to overcome the pressure of compression, and upon being released in the combustion space, is instantly ignited, as shown in the third diagram. The fourth view shows the piston just opening the exhaust port on its downward stroke, which allows the burnt gas partially to escape before the inlet port is uncovered.

The cross-sectional view shows the method in which great port area is obtained with very small vertical length of opening.—EDITOR.

The British "Sea-Mile."

In Winning the Annual Event That Decides the Speed Supremacy of England, Maple-Leaf Finally Shows That She is Capable of a Very Creditable Speed.

BY attaining a true mean speed of 37.261 knots on six runs, with and against the tide, in the Sea-Mile Record race Maple Leaf III made the fastest official speed ever recorded in Great Britain. This contest, for which there were three competitors, was one of the most interesting events during the four days' meeting of the British Motor Boat Club at Burnham-on-Crouch. The meeting was one of the most successful ever held in England, there being about 200 entries, and nearly 30 craft participated; while Mr. James Valentine gave demonstrations of monoplane flights, and also raced the 21-footer Babs II.

The entries were Maple Leaf III, of B. I. Trophy race note, Baby V, a 30 ft. 160 h.p. displacement launch, and

the new Thornycroft hydroplane Debutante, which is driven by the 120 h.p. engine from Miranda IV. The latter was not tuned up, and she only made four runs, her true mean speed for these being 30.632 knots. Baby V did not do so well as last year, and attained but 24.388 knots.

Runs.	Time.	Speed in Knots.	Means		True Mean Speed in Knots.
1....	1:38 2/5	= 36.585	36.660		
2....	1:38	= 36.735	36.772	37.716	36.889
3....	1:37 4/5	= 36.809	37.352	37.062	37.091
4....	1:35	= 37.895	37.607	37.524	37.432
5....	1:36	= 37.500	37.539	37.618	
6....	1:35 4/5	= 37.578			37.261

It was to Maple Leaf III that the speed of the day was looked for, and it was a disappointment that she only attained an average of 37.261 knots (nearly 43 miles per hour) for six 1-mile runs against and with the tide. However, we must be contented with the fact that she beat all previous official records.

Her times for the six runs are as follows: 1 min. 38½ sec., 1 min. 38 sec., 1 min. 37½ sec., 1 min. 35 sec., 1 min. 30 sec. and 1 min. 35½ sec. The mean and true mean speeds are shown by the accompanying tabulated form. There were six runs with and against the tide in almost slack water. A comparison of Maple Leaf's time with that made by Dixie in her time trials shows conclusively the American boat to be the faster. J. RENDELL WILSON.



Her average speed of nearly forty-three miles an hour on the straightaway proves that Maple Leaf III, although very fast, could not have beaten Dixie IV at Huntingdon.

The Storage Battery and Its Care.

A Talk On the Advantages of the Storage Battery for Motor Boat Ignition, and Suggestions for Its Installation.

IF many of the small launch owners knew what a cure for ignition trouble could be found in the use of a practical storage battery I am sure many would adopt it in place of the different makeshifts that we see from time to time. There are many good storage batteries on the market, and while they differ somewhat in appearance, the main features are sufficiently correct to insure satisfactory results: the essential point to keep in view is the selection of a battery with large enough capacity to meet the requirements in question.

In a small boat with a small engine, it is more or less of a nuisance to employ a dynamo or magneto that is not a part of the machine, and necessitates gearing, friction drive, belting or something of the kind, and adds to the maintenance trouble and absorbs space and power. Then again, if dry cells are used, an unknown quality of a greater or less degree has been employed with results accordingly; with a secondary battery the energy during its normal period of discharge is given up evenly, and without fluctuation, and which results in a coil (now speaking of the vibrating class), once adjusted always adjusted, and this feature alone is of considerable advantage, especially to the layman.

A popular opinion seems to exist that storage batteries are an expensive luxury: their first cost will exceed what must be paid to obtain a set of dry cells, but when you realize that a reliable battery can be charged again and again, at a nominal fee per charge, the initial cost cannot be considered, and they really become the cheapest proposition in the end. The recharging is also considered by some a serious drawback; as mentioned at first, this talk has to do with small boats, and we naturally infer that such craft will not make many long and isolated trips, but will probably often be in port. A storage battery suitable for ignition for almost any marine engine, from two to ten horsepower, can be charged in about three to eight hours, and with ordinary use should remain in serviceable condition two or three months, and possibly the whole season. I personally know of a 60 ampere hour battery, installed in a 22 foot launch (seven and one-half horsepower, double cylinder, four-cycle engine), in June of 1900, and boat in question was used about as much as a pleasure launch in general would be employed, and when boat was hauled out late in November the battery still was in prime condition, and no recharging had been done during the time mentioned.

Without going into confusing details, I may say that a battery should be recharged about every two or three months, and an occasional

By William Wainwright.

examination made to note whether the solution properly covers the plates, and if not, a little clear water may be added until the right height is reached. (Solution in general should be about $\frac{1}{8}$ of an inch above plate.)

The question of excessive sulphating need cause the user very little worry. In a reliable battery this feature is practically cared for beyond the ordinary sulphation, which, of course, happens with the necessary chemical action of the battery, and therefore may be looked at as normal. A battery should not be discharged below 1.80 volts per cell when current is flowing, and neither should a cell be allowed to long remain uncharged. Avoid making any kind of a short circuit, either with fuse wire or the ordinary ammeter such as is used for testing dry cells; when purchasing, get a good sized battery, and you need not test every minute or two—you are safe to figure it will last two or three months without recharging. As an auxiliary, one set of dry cells may be installed under control of a double throw switch, so if storage battery should become completely exhausted, a means would be provided for continuous operation until the storage could be renewed. The recharging must be made from direct current and the positive pole of the charging source connected to the positive pole of the battery; never reverse the polarity.

Each manufacturer gives clear instructions with his battery how it is to be handled, and this advice should be carefully followed. The vent holes should be kept free and open at all times. The correct specific gravity at end of charge is 1.3000 and an ordinary battery hydrometer will enable one easily to make the reading. The sediment which may accumulate in time, in the bottom of jars, must not be allowed to reach the bottom of the plates for it would cause them serious damage. This formation, however, does not grow very fast and when a time is reached for cleaning house, I would advise that the battery be returned to the manufacturer who is prepared to do, and will do, the work well and cheaply.

At the end of a season, I would suggest that the amateur return his battery to the manufacturer who will care for it properly, keep it during the winter, put it in first class condition, and return it again in the spring as good as new, and the expense won't be worth talking about.

Of course where the engine and boat are large enough different good methods are open

for use. A dynamo or magneto installed integrally with the motor afford an excellent means for ignition. Although a dynamo so installed and arranged to charge a secondary cell or cells, would give equally as good facilities for sparking, and also provide means for operating incandescent lamps for the cabin and running lights when engine is idle.

Many small open boats are equipped with jump spark motors, and although the subject has so often and so well been explained, yet its proper action is so essential for the operation of the boat, that a word or two here may not be out of place.

With a servant like the jump spark—one so rebellious and recalcitrant, that it is prone to all kinds of intractable tricks, in fact would rather evade any honest work, and go skipping out of the path of duty at every turn—jumping across lots at every opportunity, in order to get home by the way offering the least resistance—why there is only one course to pursue, and that is to impose such restrictions that it must stay on the job and do its work and do it right.

First use a good grade of rubber covered, braided primary wire, and when subject to mechanical injury, incase it in circular loom or other good tubing. For the secondary, use only the best jump spark cable made, and hang it in the clear as much as possible, and when it must come in contact with engine, encase the section that will touch the iron with a good piece of fibre or circular loom, but it is not the best practice to have long sections of the secondary wire in any kind of tubing unless it is right near engine or where some heat will not allow any moisture to gather. When the high tension wires pass along any wooden surface, use a split porcelain knob or porcelain cleat, and then just a sufficient number to keep the wires from the surrounding surface or objects.

When it's appreciated that the sparking service needs anywhere from 150,000 to 250,000 volts to do good work, it's easy to see that the utmost caution should be taken in order to conduct the circuit to spark plug without any insulation breakdown. Of course an engine will run, and many do, with the secondary wires leaking, but that is no reason why this current should be allowed to play tag around the boat instead of jumping the spark gap in the combustion chamber of the engine. A good strong spark at this place redeems the money spent for gasoline; enables you to show your club members the style of lettering on the stern of your boat, and in general goes a long ways toward spelling success.

The Second Kathmar.

A Trim 60-Footer That Has "Found Herself" After a Season's Use on Long Island Sound, for Which She Was Designed.

PROMINENT among the season's successful power cruisers the 60-footer, Kathmar II, shown on page 12, stands out prominently on account of the unusual combination of appearance, comfort and speed. This is a type of boat that the builders and designers, the Luders Marine Construction Company, of Port Chester, New York, have particularly specialized upon and they have succeeded in perfecting it to a degree that leaves little to be desired.

Kathmar II was built-for Robert T. Fowler, of the New Rochelle Yacht Club, to replace the well known, speedy 40-foot cruiser of the same name and was designed primarily as a boat that should be comfortable in any weather

that might be encountered at the eastern end of Long Island Sound. A speed of 13 miles an hour has been maintained for hours at a time, and this speed is, of course, unusual for a boat of this length especially when it is taken into consideration that there is, without crowding, sleeping accommodations in the owner's quarters for five people.

The construction of the boat, while of the finest, is not at all out of the ordinary in any way; the scantlings are not heavy but are made of ample size throughout for the conditions of service.

Two watertight bulkheads are used, the amidship one serving as a structural tie and as a permanent separation of the crew and

engine space from the owner's quarters.

The after quarters are entered from the side companionway, a feature characteristic of this concern, and which is the principal means of permitting the privacy that is to be desired in a cruiser of this size.

The owner's stateroom, the toilet room and saloon all open to the vestibule at this companionway, and a large full-length hanging locker is provided.

A very practical detail is to be found in the two entrances into the toilet room; this, of course, tends to crowd the after stateroom though not to any undesirable extent. The main saloon is of ample proportions and un-

(Continued on page 68.)

From Motor Boating Readers.

A Department for the Exchange of Ideas and the Discussion of Questions of General Interest.
Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.

MoToR Boating's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired, in which case it is desirable that initials or other distinguishing signature be appended. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Questions of Motor Design.

To the Editor of MoToR Boating, Sir:—

As an interested reader of your magazine I wish to ask a few questions in connection with a new motor I am designing. This motor will have four vertical 4" x 5" cylinders of the two-cycle three-port type, closed at the bottom to handle the charge instead of employing the usual crankcase compression. The crankcase will be closed to assist in the splash lubrication of the piston rods, crossheads and guides, connecting rod and crankshaft bearings. I wish to have the cylinder walls as thin as practical and use copper water jackets with ample water circulating space. The ports are to be 1/4" in height and the engine to run at a normal speed of 1,000 r.p.m.

1. Can you give any rule to ascertain the width of these ports to give the maximum power at the speed given? I intend to have bridges cast across the ports to protect the piston rings.

2. What is the highest compression successfully employed with gasoline as a fuel with a piston speed of, say, 900 feet per minute?

3. Have you had any experience with the construction of reinforced concrete hulls for motor boats? I saw one under the course of construction last summer but did not have the pleasure of seeing it in the water. The construction appeals to me in that the hulls can be given the desired shape very easily, but whether these boats are practical or not I have yet to find out.

W. G. MILLER,
Ironwood, Mich.

[The method we should use in figuring the area of the ports, from which the lateral dimension may be obtained, is as follows:

Use 120 ft. per second as a maximum speed for the incoming gas, and assume, as you have, 900 ft. as the piston speed per minute or 15 ft. per second.

The area of the piston equals 12.56 sq. inches.

The charge must be taken into the cylinder of the three-port engine during about one-half stroke, and if the area of the port were the same as that of the cylinder, the gas would therefore travel 30 ft. per second. The ratio of 30 to 120, is .25, and the area of the cylinder multiplied by this ratio (.25) equals 3.14 the area of port.

With a height of one-half inch, this would give you 6.28 ins. as the lateral dimension, which by the time the bridges were added in, would be impossible, for structural reasons.

Were it not for the fact that a one-half inch height of port causes the same to be opened at nearly 45 degrees above the lower dead center, it might be advisable to increase this height. But 45 degrees is about the limit for this angle of lead and it seems necessary, therefore, for you to sacrifice on the area of the port

in order to keep the width within bounds. 85 lbs. gauge is the maximum pressure advisable and for determining the volume of the combustion space use the formula

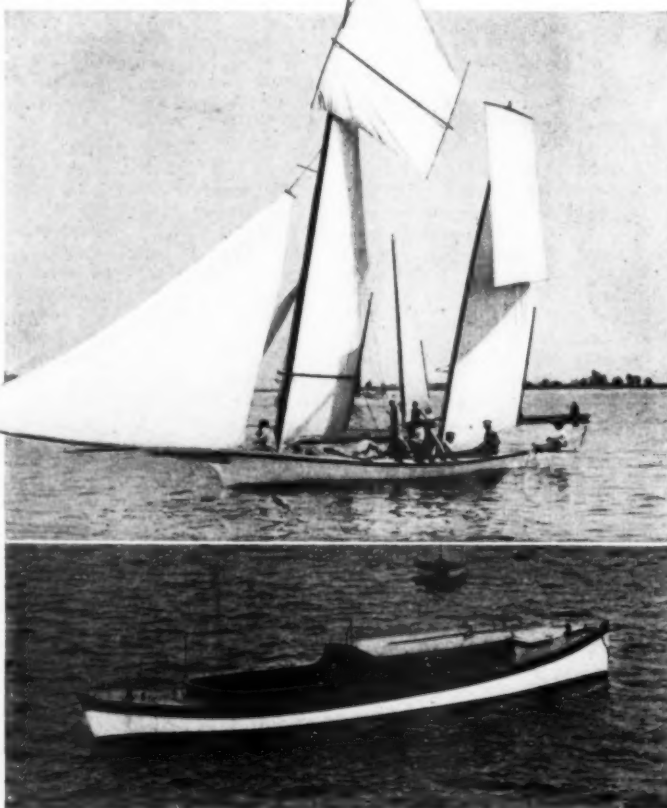
$$\frac{V_1}{V_2} = \frac{P_2}{13.8} \text{ in which:}$$

P_2 = compression pressure absolute (gauge + atmosphere). In this case $85 + 14.7 = 100$.

V_1 = total cylinder volume.

V_2 = volume of combustion space in cu. in.

Regarding the use of concrete for the construction of motor boat hulls, we have had no personal experience with this material in this connection, but in the April issue of MoToR Boating you will find photographs and descriptions of a German boat of this type.—Ed.]



The passing of the picturesque racing canoe, Island Blossom, champion of the Chesapeake, is the highest development of the log sailing canoe, described by Mr. Scott in his article on page 7. Below is shown a log canoe equipped as a motor cruiser.

Piston Rings and Clearance.

To the Editor of MoToR Boating, Sir:—

Will you kindly answer for me at your earliest convenience, the following questions pertaining to a 5 h.p. single-cylinder marine gasoline engine of 4 1/2 in. x 5 in. stroke.

1. What is the better type of piston ring?
- 2nd. What do you consider a good mixture for piston rings?
- 3rd. What is the proper piston clearance?
- 4th. Should piston be tapered from bottom to top, or from center of piston pin to top?

J. B. S., Norfolk, Va.

[The best type of piston ring is the one turned eccentrically with the ends shouldered and lapped at the joint. We are unable to give you the best formula for their composition, but any maker of grey iron castings should be able to make good rings.

The piston should be tapered the entire length and the clearance should be in your case .002 inch at the bottom and .005 inch at the top, i. e., the difference in diameter of the cylinder and piston at the bottom and at the top should be .004 inch and .010 inch respectively.—Ed.]

The Horizontal Opposed Motor.

To the Editor of MoToR Boating, Sir:—

I want to buy a 12 h.p. marine gasoline engine for a 30 ft. work and pleasure boat. I like the opposed motors but they do not seem to me much used. They seem to me the ideal motor but I have never seen one. Can you tell me their good points and their failings, and how they compare with the other type marine engines, and why they are not more used.

RICHARD T. PRATT,
Port Royal, Va.

[It is difficult to say just why the opposed motor is not more generally used in the marine field, but one explanation may be that as it is of the four-cycle type it is not as popular in small boats as the two-cycle motor, and in larger boats and cruisers the vertical space occupied by the ordinary motor is more available than the horizontal space occupied by the double opposed.

For the open boat of moderate size it is an ideal power plant, as it can be installed beneath a seat and its center of gravity is comparatively low, but it is not, of course, quite as accessible as the vertical type of motor.

In theory, also, the two-cylinder opposed motor is better than the two-cylinder vertical four-cycle motor in that it is possible to have the cranks extend on opposite sides of the crankshaft, whereas this is impossible in the vertical type.—Ed.]

Power and Propeller.

To the Editor of MoToR Boating, Sir:—

Will you please advise a propeller?

My engine is a two-cylinder 4 in. x 4 in. Pierce-Budd two and three port, rated at 12 to 15 h.p. at 1,200 r.p.m. It weighs a little less than 300 lbs. with exhaust and propeller equipment complete, and turns a Columbian wheel type. A, two-blade, 14 in. x 17 in. about 1,100 r.p.m. and gives me a speed of thirteen miles.

The boat is a Pierce Racine 16 ft. x 4 ft. 4 in. with fair lines and quite a flat stern. It has a deadwood keel 2 in. thick and 8 in. deep at its end which is 20 in. from the propeller.

B. S. STEWART, Chicago, Ill.

[The actual horsepower of your engine is 13.3. With this as a basis of calculation we find a propeller of 14½ inches in diameter by 15-inch pitch, the ideal one for the combination. This wheel should give you 12.5 miles per hour, but if, you obtain 13 with a 14 x 17-inch wheel, we would advise you to stick to it by all means.—Ed.]

Engine for a 35 Footer.

To the Editor of MoToR Boating, Sir:—

Will you kindly advise me through the columns of MoToR Boating whether or not, in your judgment, an engine with the following specifications will give good results in my raised deck cruiser of the following dimensions: Length overall, 35 ft.; beam, 8½ ft.; draft, 3 ft. The engine specifications are: Rated horsepower, 20; number of cylinders, 2; net weight, 425 lbs.; speed of engine, 700 r.p.m.; diameter of piston, 5 in.; stroke, 5¼.

Speed is not our first object, but we would like to make about nine or ten miles under favorable conditions. I am very anxious to make no mistake in the installation of power.

N. R. FILL,
St. Louis, Mo.

[We do not believe the engine you suggest is the best one for your hull, although as the latter is of moderate beam, you might be able to get fair speed results. We would greatly advise a heavier engine turning at about 500 r.p.m. This should be of about 15 horsepower, with which power you should obtain in the neighborhood of ten miles an hour, a sufficient speed for ordinary cruising.—Ed.]

Squatting and Planing

To the Editor of MoToR Boating, Sir:—

I would like to get some information in regard to squatting and planing. My

fantail boat is said to squat when running fast. The boat Joker (page 33, October issue) is said to be planing. Does the fantail ever get to planing, and does the hydroplane ever do any squatting? Take two boats, Dixie IV and a displacement boat of the same weight, as they sit on the water; now load each down with several tons of freight and then race;

which, in your opinion, will first cross the line? Mr. H. J. Gielow drove a nail in a good place. I would like to have his opinion on the last question.

J. C. WATSON, Penn Yan, N. Y.

[The term squatting is applied to the action of a boat of the old design when driven at a speed higher than that for which it was intended. This is merely a compensation to keep the displacement about normal, as the bow tends to rise due to a tendency to plane, and the stern settles correspondingly. At sufficient speed and if properly designed, however, the stern of a hydroplane or flat bottom displacement boat cannot settle to any great extent, as the action of the water against the hull in this type of craft, furnishes an upward thrust which takes the place of the supporting action of the water when the same boat is submerged to her normal displacement.

There is no question but that at low speeds the hydroplane is much harder to drive than the displacement boat.—Ed.]

Power for a 30-Footer.

To the Editor of MoToR Boating, Sir:—

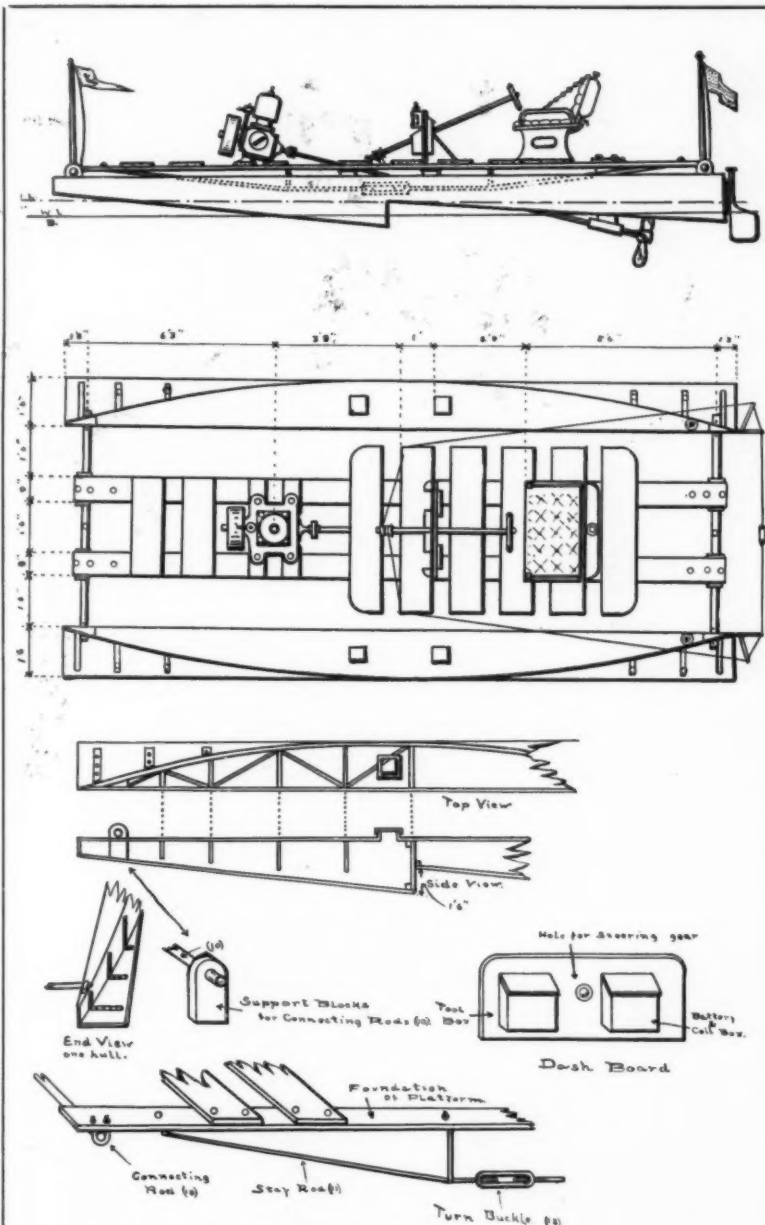
I am having a hunting cabin cruiser built, 30 ft. x 8 ft. 6 in., which the builders tell me, when complete will displace fully 3½ tons.

I would like to know how much power I will need to drive this boat 12 miles an hour.

M. SCOZZARI,
Westchester, N. Y. C.

[If your boat is of the usual type, it will not be advisable to crowd power enough into her to drive her at twelve miles an hour. Roughly, we should say it would take about 25 horsepower.

A 15-horsepower motor should drive the boat ten miles an hour, and this speed is sufficient for a boat of your size and type.—Ed.]



The latest thing in hydroplanes—a 20-foot hydro-catamaran.

A Hydro-Catamaran

The First Application of the Hydroplane Principle to a Boat of the Double Hull Type.

By B. G. H.

WHILE considered rather a freak and attracting considerable comment when under way this little catamaran hydroplane is thoroughly practical from every sense of the words "speed from small power." Fifteen miles per hour with a 4 h.p. Gray motor in a 20 ft. boat is not an ordinary everyday outfit.

Granting there are a number of catamaran boats and launches in use, yet to my knowledge, this is the first hydroplane catamaran brought to light.

This boat is unusually easy to construct and good results can be counted on, as her construction is merely that of two box-like hulls with straight planking and seams. No steam-

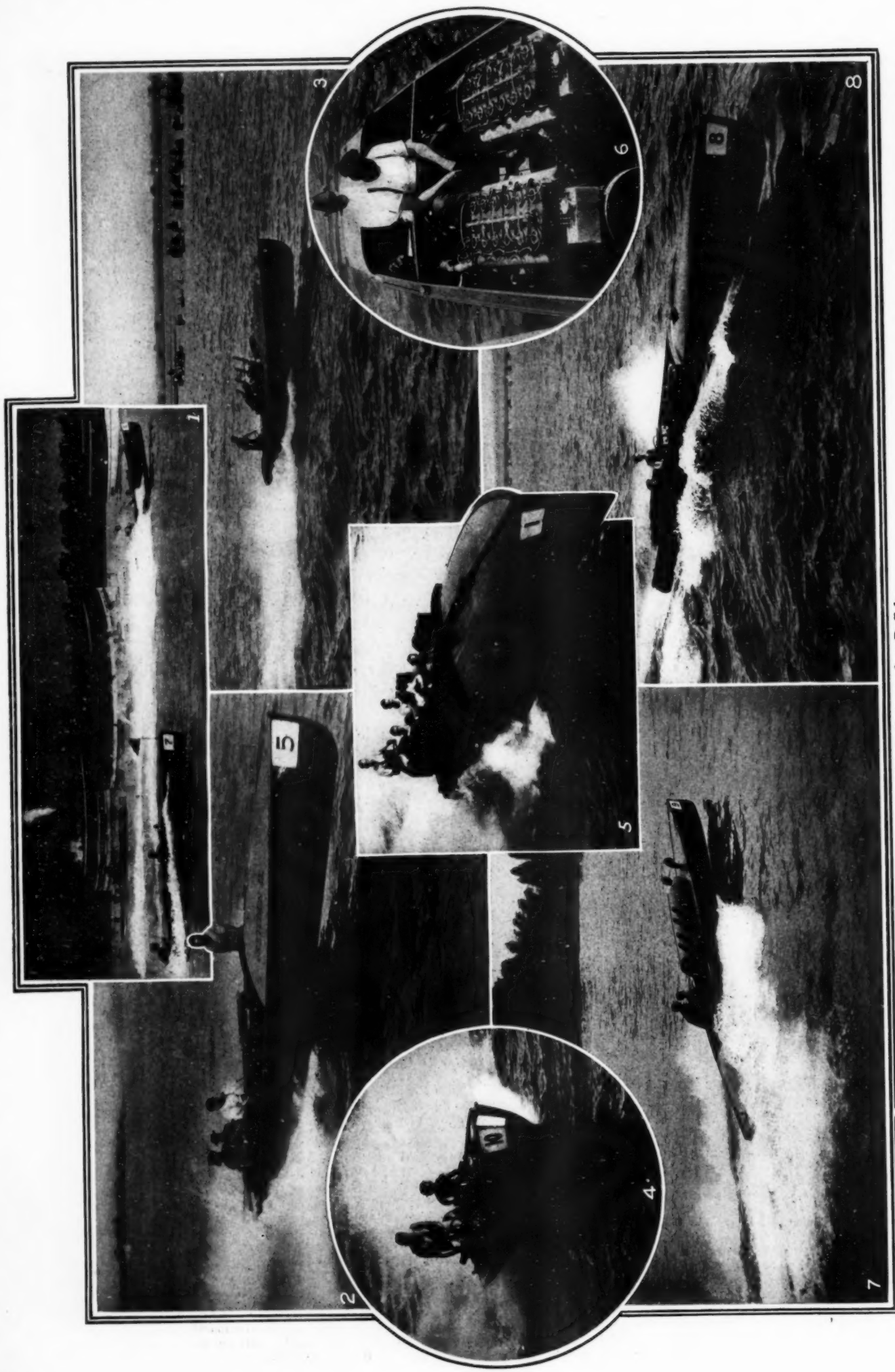
ing of the planks is at all necessary, and by following the plans, dimensions and the several detailed illustrations anyone may obtain the same results.

There are several notable features about her construction that are worthy of careful consideration for speed: First, her flat bottom hulls have planes for lifting; second, her hulls while being narrow are spread 6 ft. apart inside measurement, thus insuring great stability, a good and strong point in the catamaran build of craft; third, the hulls are tied together with two connecting rods (10) each hung on a swivel to the hulls, this allowing each hull to rock independent of the other. This last feature is especially good in rough water as it

causes less strain on the whole craft. Fourth, the propeller is in solid water undisturbed by the hull. If you will refer to the plan you will note her hull lines inside are straight and parallel; this allows the water to pass between the hulls entirely untroubled and solid.

The hatches are to air and to pump out the hulls and are made 6 in. square. The hulls are made of ¾ in. wood and put together with white lead and muslin strips between the seams.

A turnbuckle (12) is placed under each sideboard to true the shaft and the stern bearing with another turnbuckle is inserted in the steering line between the two rudders to keep them parallel.



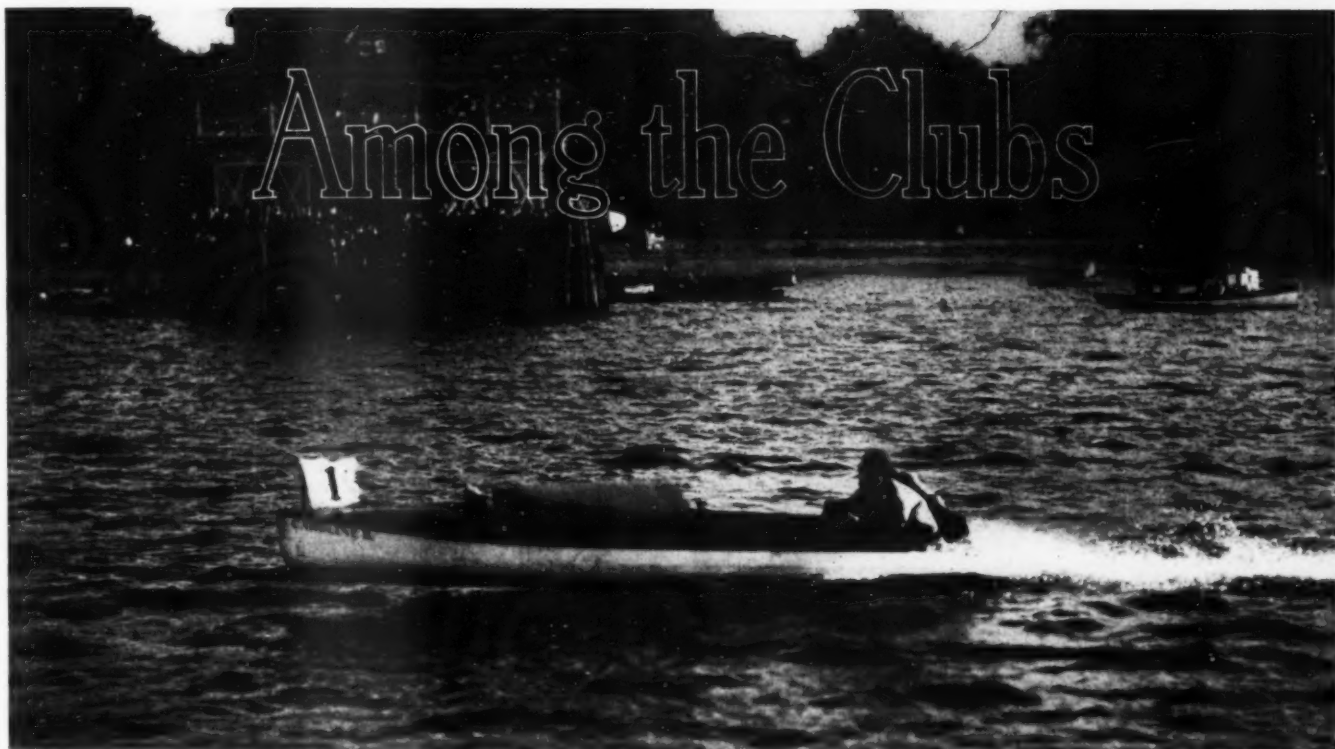
Photographs by F. C. Lewis.

1. The start of the 32 ft. class, won by Reliance IV at over 32 miles an hour.
2. Gretchen II, winner of the \$2,500 Thomas Trophy for the championship of the Great Lakes, a 32-footer, equipped with two Van Blerck motors.
3. Buffalo Courier III, owned by Mr. W. J. Conners, of Buffalo.

Boats that raced at Buffalo.

4. Reliance IV, winner of the 32-foot class. She is a 26-footer owned by Mr. J. J. Ryan of Cincinnati, and is equipped with a 90 H. P. Van Blerck motor.
5. Dixie IV, winner of the "Championship of the United States," wrecked as told and illustrated in the last issue of *MOTOR BOATING*. See photograph elsewhere in this issue, taken just before the crash.

6. The two 90 H. P. Van Blerck motors that drove Gretchen II to victory.
7. La Fruda, the 32-footer owned by Mr. H. T. Vars of Buffalo. She is equipped with a 100 H. P. Sterling motor.
8. U.I. II, winner by Messrs. Wickwire, of Buffalo, and powered with a 100 H. P. Buffalo engine.



Caroline II, winner over Sand Burr II and other fast boats at the Riverton Yacht Club Regatta.

The Pistakee Yacht Club, McHenry, Ill., awarded the owners of the prize winning motor boats sterling silver trophy cups, as follows:

Season's cup for most consistent performance: Class A, boats making better than 15 miles an hour—Sentinel, owned by O. C. and E. M. Miller, Chicago. Class B, family motor boats—Three Boys, owned by S. Blodgett, Chicago.

Fourth of July Free-for-All races—Sentinel, Miller Bros., Chicago.

Labor Day Free-for-All races—Wildwood, owned by John Duffy, Chicago.

In the free-for-all races on the 4th of July, Sentinel made five and a half miles in 15 minutes, 55 seconds. The season's cups were closely contested for all summer, there being a total of forty-two different boats entered. Three of the boats were tied at the end of the season, and an extra race was necessary to determine the winner.

The Bergen Beach Yacht Club, Bergen Beach, L. I., celebrated "Flag Officers' Day" shortly before the close of the season. More than 150 members and friends of the club spent the day on the beach, about 35 motor and sail boats conveying them thither from the clubhouse. Some interesting track events were pulled off on shore, and a ladies' rowing race off the beach. All the flag officers were present. These comprise: Edgar H. Watson, commodore; H. J. Hildebrand, vice-commodore; Willard P. Hough, rear-commodore; Louis Sandkauf, Fleet-captain. The secretary of the club is Fred C. Haav, Jr., 354 Linden Avenue, Brooklyn, N. Y.

The Columbia Yacht Club, New York City, held motor boat races on September 16th. There were four events, for high speed, semi-speed, cruising, and open boats respectively. There were three starters in the high speed event: Hazel, now known as Bug, Gunfire, Jr., and Tequila. Hazel was disqualified, however, and Gunfire, Jr., did not finish, so the event went to Tequila who covered the course of 30 miles in 1:43:48. The cruiser class was the best filled,

there being seven starters. Margo, owned by Russell Dart, covered the ten-mile course in the best time (1:17:12), but on corrected time the event went to Respite, owned by Dr. V. C. Pedersen, with Amorita, owned by F. N. Collins, second. The winner in the semi-speed event was Adelaide, owned by H. C. Cushing, Jr., while Elise, owned by T. Kirk, captured first place among the open boats. The summary:

Class 1.—Open Boats, 10 Miles.		
Boat and Owner.	Elapsed Time.	Corrected Time.
Elise, T. Kirk.....	1:06:05	1:05:19
Traveller, C. Dabelstein.....	1:18:06	1:18:06
Paula, C. S. Bader.....	1:44:47	1:29:02
Class 2.—High-Speed Boats, 30 Miles.		
Gunfire, Jr.; W. J. Brainard.....	Did not finish	
Hazel, A. E. Smith.....	Disqualified	
Tequila, David Dows.....	1:43:48	

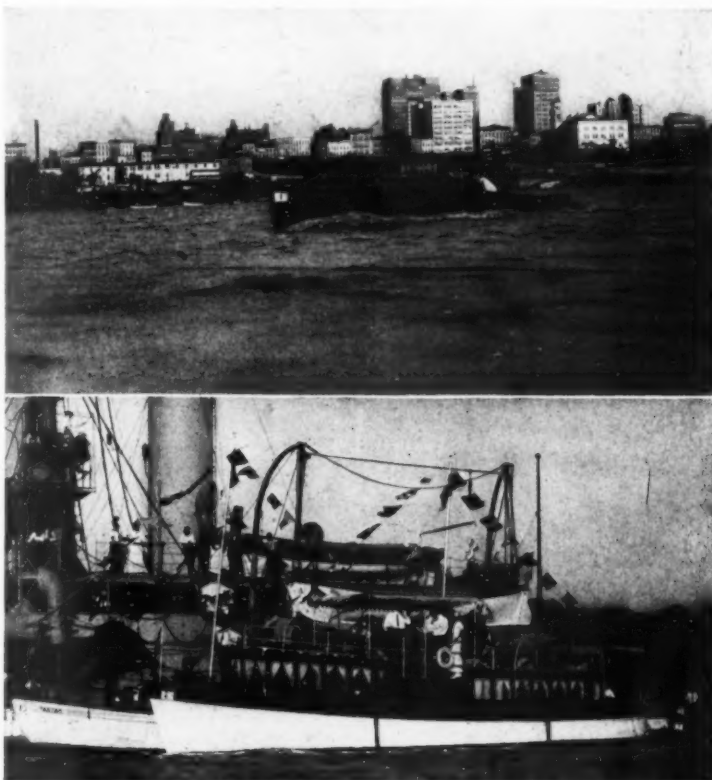
Class 3.—Cruisers, 10 Miles.		
Amorita, F. N. Collins.....	1:17:17	1:10:56
Gracelda, Dr. D. B. Brinsmade.....	1:28:10	1:15:43
Respite, Dr. V. C. Pedersen.....	1:18:37	1:07:21
Spark II, W. W. Brinckerhoff.....	1:39:23	1:29:54
Margo, Russell Dart.....	1:17:12	1:15:33
Susan B., J. F. Fisher.....	1:21:37	1:20:12
Gaddy, A. J. McIntosh.....	1:24:23	1:24:23

Class 4.—Semi-speed Boats, 15 Miles.		
Adelaide, H. C. Cushing, Jr.....	1:10:37	0:46:39
Ink, V. F. Ridder.....	1:22:21	1:16:37
Sispuh, J. B. Conatus.....	1:08:57	0:51:09
Prodigy, L. E. Warren.....	Did not finish	

The Memphis Power Boat Club, Memphis, Tenn., held its annual regatta on Saturday, September 16th. A five-mile handicap race for speed boats was the feature race of the day. Ha'nt, owned by D. Hottum and Dr. L. Leroy, was the particular star. A large crowd witnessed the races from the U. S. monitor Amphitrite. The first event was badly handled by the officials, the times being confused, and no winner announced.

The Keensburg Yacht Club, Keensburg, N. J., have become incorporated and the following officers have been elected: Walter S. Bailey, commodore; John S. Truax, vice-commodore; George P. McHugh, rear-commodore; Roy S. Golden, secretary; H. C. Ackerman, treasurer; W. H. Doppler, fleet surgeon; Charles Carr, fleet captain. The club has taken title to the property on Waycake Creek and Raritan Bay, and plan to have a clubhouse erected there before spring.

The Albany Yacht Club, Albany, N. Y., will have a splendid new clubhouse by next spring. The city has appropriated half a million dollars to transform and beautify the entire river front at the basin and the new home of the yacht club will be an important item in making the waterfront more sightly than it is at present, and in restoring the city to its former place of leadership in water sports among the cities of the United States. The regatta of the Hudson River Yacht Racing Association is to be held under the auspices of the Albany Yacht Club next year and it is hoped to have the new building opened in time for this event. Con-



At Memphis Annual Regatta. Above, Ha'nt, fastest of the speed boats. Below, U. S. Monitor Amphitrite, on which many of the spectators took their stand.

struction work is well under way, cement piers for the foundation having been completed. The new building will include, among other features, a large assembly hall for meetings and social functions, a large Dutch grill room, and an unusually large space for the storage of boats. John E. Scopes is chairman of the building committee.

The Mississippi Valley Power Boat Association's championship class cup, known as the Webb \$1,000 trophy, and the \$500 cup of the Dubuque Motor Boat Club, won by "Jim-mie" Pugh on July 4th, have been stolen from the windows of the Chicago Boat & Engine Co.'s show rooms where they were on exhibition. The Chicago Boat & Engine Co. are Western agents for the Sterling, the motors that drove Disturber II to the victory that made the Dubuque club's cup the personal property of Commodore Pugh and gave him the custody of the Webb trophy for a year. The latter measured 28 inches in height and 14 inches across the base, and weighed over 300 ounces Troy, or about 19 pounds avoirdupois. But little hope is held out for the recovery of the valuable trophies, for the general belief is that by this time they have gone into the melting pot. A replica of the famous cup can easily be had from the same dies, but the Valley Association would naturally much rather have back the original, even if it has been badly battered since its theft.

The Waucoma Yacht Club, New Haven, Conn., elected the following officers at their annual meeting: J. F. Crum, commodore; H. Anderson, vice-commodore; O. Tacinella, rear-commodore; C. A. Berlepsch, recording secretary; C. H. Rhodes, financial secretary; C. Durlach, treasurer; H. LaSor, measurer.

The New York Motor Boat Club, New York City, held its annual race to Rockland Light and return on September 24th. Louisa D., owned by H. Van Ness, was the winner, over the nineteen other starters, covering the course of 40 miles in 5:16:55. Each boat's handicap was based on her actual performances in previous races during the present season. The boats were sent away from the club float at their allotted intervals from a standing start. The boats had a fair tide both going and returning. Waywood, H. Dill, owner, was



The Los Angeles twenty-footer, Mystery, which, with her 21-h.p. Gray, came out on top in the Santa Barbara races.

the first boat to round the light. The summary:

	Start.	Finish.
Louisa D., H. Van Ness.....	10:28:50	3:44:55
Anna V., W. B. Young.....	11:29:20	3:57:12
Rex, H. S. Allen.....	10:00:00	3:58:26
Genevieve A., W. D. Adams.....	10:12:00	4:00:35
Crescent, H. L. Kessler.....	10:22:00	4:02:06
Twin Kid, P. A. Vallance.....	10:52:00	4:04:43
Ariel, H. J. Leek.....	12:51:20	4:05:37
Respite, V. C. Pedersen.....	11:32:40	4:10:56
Royal Arc, Robert Haire.....	11:10:40	4:12:16
Alma, R. Swase.....	10:28:40	4:13:35
Corinne, C. B. Wilkes.....	10:36:40	4:22:14
Peggy, W. B. Selden.....	11:22:00	4:23:21
Monroe, E. G. Barney.....	11:36:00	4:24:46
Non Plaisir, W. M. Latimer.....	11:13:20	4:28:40
Arlington II, J. Klipper.....	11:10:00	4:34:21
Eastern Star, E. R. Finch.....	11:16:40	4:35:35
Pilot, C. Scherer.....	11:06:40	4:36:14
Rita, William Perry.....	11:09:20	4:36:48
Consort, C. F. Chapman.....	11:00:00	4:39:15
Wayward, H. Dill.....	9:03:20	4:40:10
Mabel F., John S. Flynn.....	Not timed	

The Solvay Boat Club, Detroit, Mich., ran off a regatta on September 24th in which the well known speed boats, Gretchen II and Intruder II, both owned by J. M. Hubbard, of Pittsburgh, carried off the honors. The times:

Free-for-All—Course, 15 Miles.	
Gretchen II, Pittsburgh, Hubbard.....	0:126:53
Echo, Scott.....	0:140:44
Can't Tell, Van Blerck.....	Disabled
Class A—Handicap—Course, 15 Miles.	
Echo, Scott.....	0:39:30
Stuart, Stuart.....	0:44:28
Lucille, Patterson.....	0:42:09
Commodore, Greening.....	0:37:46
Class B—Handicap—Course, 7½ miles.	
Lady B., Crumhorn.....	0:38:04
Tickle, Tasch.....	0:50:17
New Member, Norton.....	0:29:37
Julia S., Sloat.....	0:37:26
Novelty races: Won by Lyes; Procrastination second; Fern D. third.	

The Bristol Yacht Club, Bristol, R. I., elected the following officers at their annual meeting: William L. McKee, commodore;

Edward F. Ely, vice-commodore; John F. Palmer, 2d, rear-commodore; Frank A. Ingraham, secretary-treasurer; Charles H. Douglas, measurer. The regatta committee consists of Walter S. Almy, William B. M. Miller and Dr. Howard W. Church.

The Wilmington Yacht Club, Gordon Heights, Del. The first sanctioned race of the new Delaware River Yacht Racing Association, a branch of the American Power Boat Association, was held on Friday, September 22nd, under the auspices of the Wilmington Yacht Club. It was a 63-mile race for cruisers,

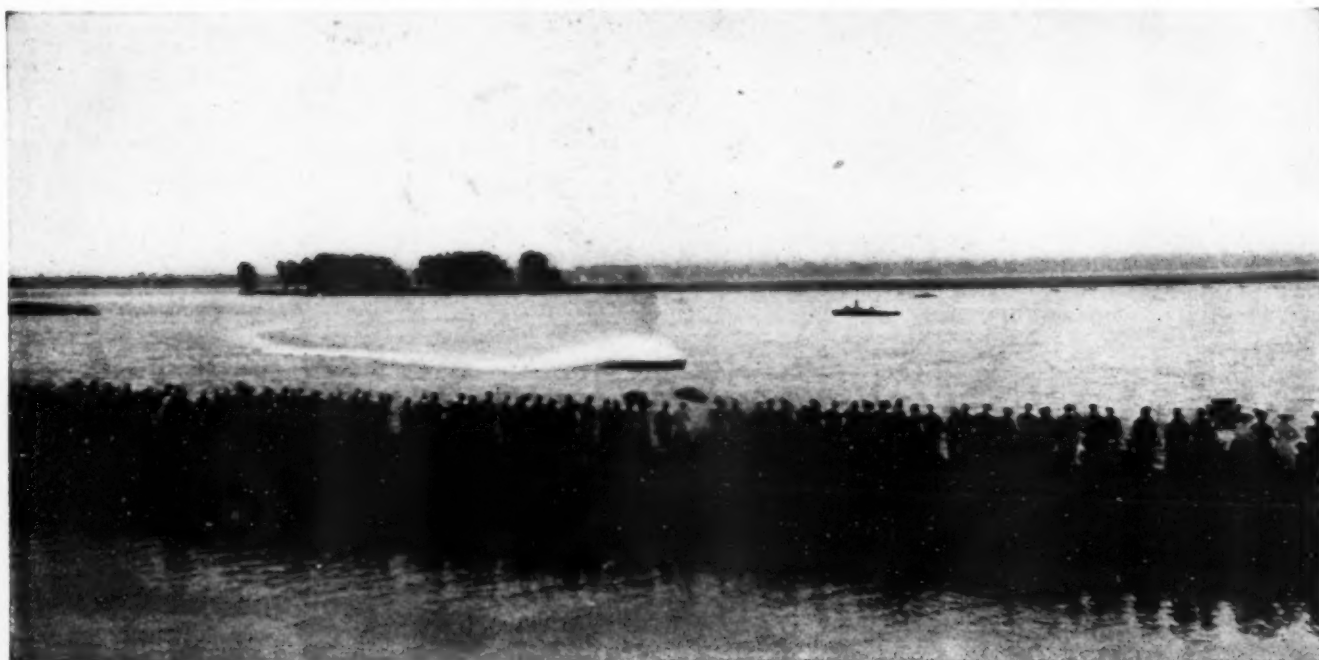
the course extending from the Wilmington Yacht Club to Ship John Light on the Delaware, and return. Chelwood, owned by R. Lennig, and rating at 39.06, was the winner, although Pickaninny, owned by J. V. Bell, was but ten seconds behind her at the finish. The trophy will be held by the Yachtsmen's Club, of Philadelphia. There were nineteen starters and as the boats were sent off on their handicaps, over two hours elapsed between the start of the first and last boat. Four of the starters were disqualified and three of the original entrants did not start.

A speed boat event was also pulled off at the time and attracted five of the finest speed boats in that section of the country. The race consisted of four circuits of a three-knot course, the boats being continually in the view of the spectators. The event was won by Caroline II, owned by E. J. Dumee, of the Ocean City Yacht Club. Her average speed was 20.05 miles per hour.

The summaries:

Cruiser Race—63 Miles.			
	Rating.	Start.	Finish.
Chelwood, R. Lennig.....	39.06	12:57:06	8:10:00
Pickaninny, J. V. Bell.....	39.51	12:41:26	8:10:10
Ben Riley, G. Bilyou.....	39.06	12:37:06	8:17:18
Arab, A. S. Smith.....	40.68	12:02:07	8:47:22
Eugenia, Dr. Swain.....	38.34	12:30:00	8:47:19
Adois, C. Isenberg.....	40.00	12:46:07	8:39:08
Rosalie, W. H. Ewing.....	41.85	1:02:39	8:27:24
Clare II, J. Drexler.....	43.74	1:18:11	8:33:28
Ibbie Jane, B. N. Cutshall.....	44.64	1:25:05	8:36:00
Casino, Wm. Erb.....	44.64	1:25:05	8:35:12
Haji, H. J. Dulle.....	45.00	1:27:47	8:25:20
Budd, J. P. Nelson.....	48.96	1:54:45
57, J. S. Sheppard.....	49.22	1:56:21	8:45:55
Vixen, G. C. King.....	52.06	2:15:53	8:52:37
Elk, E. Moore, Jr.....	45.90	1:34:19	9:20:02
Isabella, B. Hay.....	50.04	2:03:31	8:58:30
Phantom, F. Biddle.....	42.31	1:06:31
Rainbow, G. A. Latta.....	51.30	2:08:43	9:12:00

(Continued on page 70.)



Photograph by H. D. Hurlbut. Dixie rushing to destruction at Buffalo. This remarkable photograph shows the hairpin turn the champion described, while the cross indicates the place where she struck the riprap, shot clear of the water and injured several spectators.

New Things for Motor Boatmen.

New Attachments and Accessories That Are Offered to the Man with a Boat.
The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions and, whenever possible, illustrations of the various devices designed to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's installment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING, which will form, together, a very complete illustrated directory of the things the motor boatman needs. —In writing the makers of the articles shown, if our readers will mention MOTOR BOATING they will receive special attention.]

Dudly Folding Wrench.

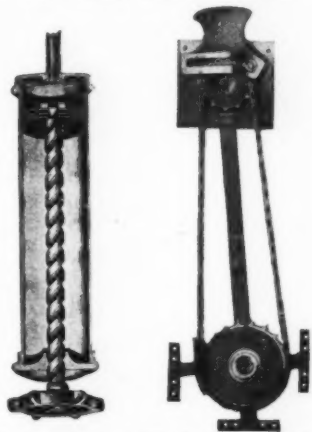
A. Dudly, Sr., of Menominee, Mich., has just been granted a patent upon a new set of wrenches of which eight can be put up in various sizes in a small leather folder which can easily be carried in the pocket. The set consists of four wrenches, each having two members with a wrench-opening at each end, making eight wrenches of different sizes in a set. The range of the set covers the great majority of nuts and cap screws upon any motor. The essential feature of the tool is the folding part, which is unique in design. It is very substantial in construction, and is exceedingly rigid, although when the wrench is extended and interlocked for operation it is $6\frac{1}{2}$ inches long and has the strength of a solid bar wrench. When folded, the length of the tool is reduced about one-half, making it useful not only in being carried easily but also in rendering accessible nuts in places where space for operation is limited. The wrenches are made of plate steel and the openings are cut for standard size nuts from $\frac{1}{4}$ -inch up to $2\frac{1}{2}$ -inch, including a gas tank key. They are furnished in either mottled or nickel finish.



The Dudly folding wrench.

Miller Combination Grease Gun.

The grease gun shown in the accompanying illustration has been placed upon the market recently by B. M. Asch, 1777 Broadway, New York City, and contains all the features of a grease gun, with an additional spout for oil. The barrel is $6\frac{1}{4}$ inches long by $1\frac{1}{2}$ inches in diameter, of seamless brass tubing, and the cap, nozzle and star wheel are of cast bronze. The hub on the nozzle and caps is $\frac{3}{4}$ of an inch thick, giving the worm and thread large bearings, and a double wide spiral worm is cut on the shank. The plunger has a large shoulder on the bottom of the shank. A hard brass washer fits the shoulder and barrel similarly to the way the piston of an engine fits the cylinder. Between this and another hard brass washer is placed hydraulic cup leather. When the grease is ejected from the cup, the shank revolves and not the plunger, so that it is impossible for the grease to back up. To use gasoline or oil the thumb screw is removed from the top of the barrel, the small spout being used for oil and the large spout for grease. The price is \$2 in the quick-operating type and \$2.50 in the quick-operating combination type.



The Miller grease gun.

Mechanism of the Perfect window regulator.

The Gasifter.

A device for thoroughly mixing gases, acting upon the principle of screening or sifting powders, has been brought out by the Toledo Automobile Devices Company, Gardner Building, Toledo, O., and is made in many sizes to fit all makes of engines. It acts as a gasoline sifter by passing the vapor and air mixture through four brass screens of different sizes, thoroughly sifting and breaking up the globules of gas and delivering to the cylinders a gas mixture of even density at all speeds. The device has no revolving parts and it is said will give a considerable amount of extra mileage to the gallon of gasoline. Since the mixture supplied by this device is practically perfect, the motor and valves are kept in much better condition and are not easily fouled by carbon. The Gasifter is very easily installed upon any motor, it being necessary only to cut a circle in the gasket of the intake pipe just large enough to allow the Gasifter to drop into place on the lower flange leading from the carburetor. When the pipes are screwed up tight so that no air can leak the result will be very satisfactory. The price of the instrument is \$2.



The Gasifter.



The Langehr safety device.

Practical Marine Engineering.

The third edition of this publication compiled by International Marine Engineering, 17 Battery Place, New York City, is just from the press and contains additional chapters of interest to motor boatmen on internal combustion engines, steam turbines, oil fuel, gas plants and marine producer gas plants. The book is devoted exclusively to the practical side of marine engineering and sells for \$5.

Perfect Window Regulator.

A window regulator which will be appreciated by owners of trunk cabin cruisers and boats having Pullman windows, is being placed upon the market by the Perfect Window Regulator Company, 43 Exchange Place, New York City, and is designed to do away with the objectionable features of windows that stick and are difficult to open. The raising of the window is accomplished by this device by the simple turning of a handle in one direction; turning the handle in the other direction closes the window, and it may be held in any position desired. It is impossible to open the window from the outside with this arrangement and it may be left open a trifle at the top for ventilation without fear of giving entrance to unauthorized parties when the craft is lying unattended. As may be seen from the illustration, the device consists of a cam plate which is attached to the lower frame of the sash, two ball-bearing sprockets mounted on steel plates and connected by means of an adjustable steel spacing bar. The two sprockets are rotated by means of a special chain turning a handle conveniently placed, which engages with a clutch located in the upper sprocket to provide a positive lock. All bearings are packed in graphite and all parts are finished with a rust preventative.

Langehr Safety Device for Tanks.

A device for preventing the explosion of volatile explosive fluids such as gasoline and benzine has recently been introduced into this country by Bernard Zwilling, a chemist, who brought the invention from Germany, where it has been adopted by the Government for use in the navy. It is also used in Europe by commercial establishments where gasoline is utilized, on tank cars and in the automobile trade. The device, which is the invention of the German engineer, Langehr, is designed to prevent a flame on the outside from reaching the inside of a receptacle containing combustible liquids. The wire gauze of the Davy mining lamp, upon the principle of which the Langehr device is based, has given way to a metal tube. This is fastened to the opening of the can or tank and provides a channel by which the gasoline or other fluid passes in or out of the container. The tube is of corrugated metal, wound spirally, and perforated so that the liquid stands at the same level as in the can. When a flame is applied to the receptacle equipped with the device causing the surrounding vapor to ignite, the flame does not enter the can, for the tube absorbs the heat, cooling the burning gases completely. To the top of each tube is fitted a screw cap with a film of bismuth inserted in the head, such as is used on automatic sprinkling devices, which will melt if subjected to heat, thus allowing the gasoline to burn freely and preventing an explosion. Dr. Edward D. Feldman has recently given several interesting demonstrations of the Langehr device at the Berlin Chemical Laboratory, New York.

Smack's Life Preserver.

The life preserver illustrated on this page is a recent invention of Cyril A. Smack, 341 Liberty St., Long Branch, N. J., and since it is designed to be placed around the neck of the wearer to keep his head well above water, it is impossible to overbalance. The under arm straps hold the device tight down to the shoulders, and the straps are tied across the joint in front, making the preserver adjustable so that it will fit a person of any size. This type of life preserver can be packed very close and it has been used with great success in the surf and by life guards on bathing beaches. The superintendent of the U. S. Volunteer Life Saving Corps, after a test found that the device would support three men, one wearing the preserver around his neck and the other two clinging to the sides. The filler is solid cork, and the method in which it is worn allows perfect freedom for using the breast stroke in swimming. The preserver can be adjusted even more easily than the ordinary cork jacket and can be put on in the water when used as a life ring. The price is \$2 each, although a reduction is made in large quantities for fitting out yachts complete.

* * *

Shain Ball Spray Carbureter.

The illustration shows a sectional view of a new type of carbureter just placed upon the market by Charles D. Shain, 1923 Broadway, New York City, the baffle plate and ball in the illustration being lifted by light suction. The ball valve or sprayer revolves, due to the pressure of gasoline which is readily vaporized by the air when sucked up at high velocity through the ten ports or holes in the bottom of the carbureter. The carbureter requires no float since the ball valve shuts off the gasoline when the motor stops. The carbureter also has no needle valve since the gasoline flows through one of a number of nozzles screwed into the top of the removable screen plug in the bottom of the carbureter. The screened plug containing the nozzles can be removed for cleaning and changes in the flow of gasoline without disturbing the carbureter or its connections. Attached to the baffle plate is a tilting bar which unseats the ball at low throttle, thus making the carbureter practically of the multiple jet type. A shaft across the top of the ball is provided with an eccentric cam operated by a thumb nut on the outside for regulating the lift of the ball. The carbureter weighs from 50 to 75 per cent. less than the ordinary type and costs \$6 in 1-inch size, \$8 in 1½-inch, and \$10 in 1½-inch.

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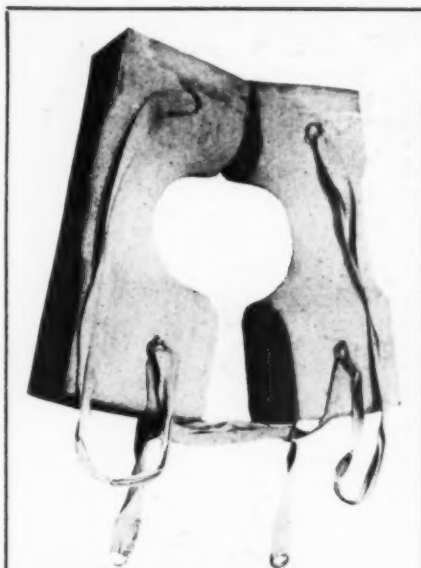
The Deaco Dynamo.

A new dynamo for electric lighting has been brought out by the Detroit Electrical Appliance Co., 264 Jefferson Ave., Detroit, which is said to be exceedingly practical, since by the use of a patented electric regulator it is impossible to ruin the battery or dynamo. This regulator gives accurate control at all times and regulates the current constantly to just the proper degree. The instrument consists of a drum armature revolving on ball bearings between a permanent and an electro-magnetic field, and when the dynamo is in service the storage battery floats on the line. The total weight is 35 pounds and the price including a switch is \$75.

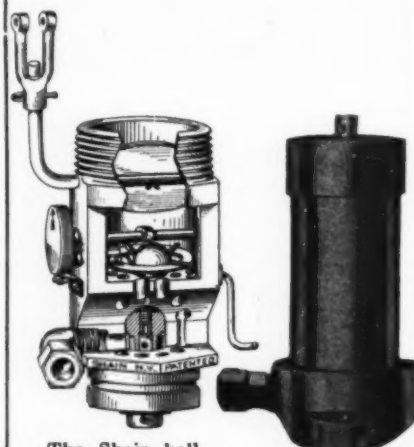
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New Morse Switches.

Frank W. Morse, of 516 Atlantic Ave., Boston, has just brought out two switches of a new design for use on motor cars or motor boats. The one known as the Chapman, style V, is very small and is shaped something like a door handle. It turns in either direction, every quarter turn making a connection and every quarter turn again disconnecting. It is so well insulated that it can be used on full current if necessary. The Chapman switch is very small and compact and easily operated. The price is 40 cents. The other style, known as style U, for floor and push button, is also small and compact. This switch is very strong and well insulated and can be used either for the horn or whistle or the lamps. The price is 50 cents.

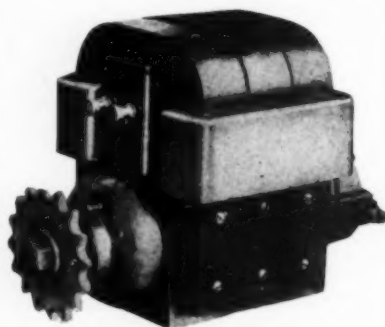


The Smack life preserver.

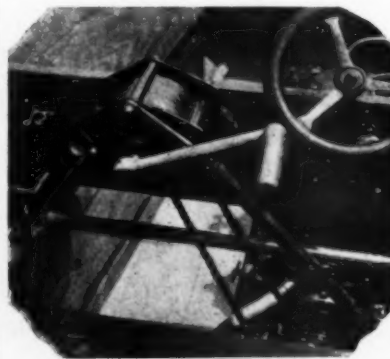


The Shain ball spray carbureter.

Dymogene.



The Deaco Dynamo.



The Star Starter.

Blackburn Automatic Lock Switch.

An automatic switch which can be locked securely and which can be applied very easily to any coil box has just been brought out by The Blackburn Specialty Company, 1404 West 3rd Street, Cleveland, O. The lock is placed on the face of the coil box and takes the place of the ordinary switch. It is operated by simply inserting the key in the lock and turning it slightly to the right or left. This action brings the switch-bar across the battery or magneto contact points and the key can be removed only when the circuit is broken. It is impossible to short-circuit the wiring as the current must go through the coil to be effective and in no way can it pass through the coil without going through the switch-bar which is connected only by the key. The switch case cannot be removed even after the screws are drawn except when the key is inserted and turned to the releasing point. The lock is of the Yale type which is proof against skeleton keys and there is no duplication. This switch is applicable to any system of ignition, the contacts being arranged to suit the different wirings. The price is \$5.

* * *

Dymogene.

The device shown upon this page, known as Dymogene, is manufactured by the Blessed Manufacturing Co., Chamber of Commerce Building, Detroit, and is designed to assist in starting the motor, especially in cold weather. Dymogene is about the size of a tea cup and fastens to the bulkhead out of sight. It weighs 1½ pounds and consists of a gas generator and dash pot which delivers a dry gasoline gas to the manifold by merely pulling a light wire. The generator is regulated at the factory and does not have to be touched. It will at any time supply the cylinders with a perfect mixture, ready to ignite, and eliminates the necessity for spinning the motor or priming the cylinders. The price of the device is \$5.

* * *

L-C-R Dash Lamp.

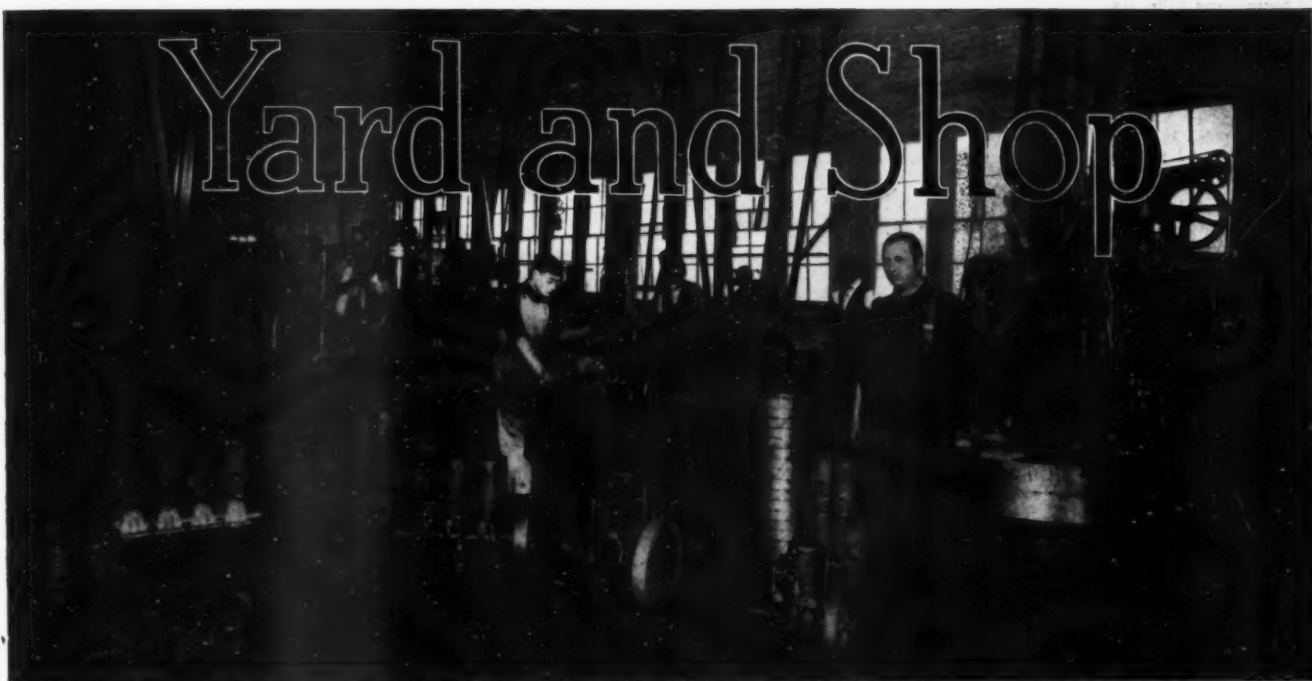
This dash lamp is manufactured by the L-C-R Storage Battery Company, of Dayton, O., and is designed to be used both for motor cars and motor boats where electric lighting systems are in service. The lamp may be attached to the dash of the car or to the bulkhead of the motor boat where it will throw the light where most needed. The lamp bulb cannot jar loose or work its way out of the socket inasmuch as the socket is of the lock type, known as the Ediswan. A flash button is furnished with each lamp so it can be operated from the seat and a shade is provided to throw the light down over any indicator or dial in the vicinity. The lamp may also be used as a trouble lamp. If desired to use the device as a trouble lamp it is a simple matter to detach the lamp from the bulkhead, and by means of a length of cord furnished it may be carried to any part of the engine. The bulb may be protected by a guard for this work so it is not easily broken. The price complete is \$2.

* * *

Star Safety Starter for Marine Motors.

The safety starter made by the Star Starter Company, 170 Broadway, New York City, is now made to be applied to marine motors in the manner shown in the accompanying illustration. The ordinary type of crank connected with a chain is substituted for the long lever used in connection with the device upon motor cars, but the safety features of the crank are the same. In starting, the chain is pulled by the crank as it is turned, and the engagement of the pawls and ratchet in the mechanism of the starter causes the shaft to be turned over, the pawls in turn serving to prevent the ratchet from reversing should the motor start in the wrong direction. The device occupies but little more space than the ordinary type of starting crank, and serves to make the motor much easier to start.

Yard and Shop



Where the Gile Reversing Marine Motors Are Built.

St. Louis Show Next Month.

The elaborate plans for the big motor boat show to be held in St. Louis December 11-16, under the auspices of the Mississippi Valley Power Boat Association, are bringing in good results. By preceding both the New York and Boston shows it is the first exhibit of national importance of the season. Builders from all parts of the country are beginning to see the vast territory that awaits them in the Mississippi Valley. Over 800 motor boats are operated in St. Louis alone and there is a market for thousands more if the people can be brought in contact with the manufacturers. Within a radius of 150 miles there are streams navigable for good sized motor boats to the extent of nearly 1,000 miles. Applications for space at this show, which is St. Louis' first, are being received almost daily. An interesting fact to note in connection with this show is that it is the first show ever given by an organization other than a trade one. All communications should be addressed to F. W. Payne, manager, Coliseum, St. Louis, Mo.

A New Eight-Cylinder Sterling.

The Sterling Engine Co., Buffalo, N. Y., are planning to have a new eight-cylinder speed motor out in time to catch the early race meetings of the South. It will be remembered that last year's Sterling racer was also an eight-cylinder machine of 100 h.p., having a 5½ in. bore and a 6 in. stroke. It is stated that the stroke of the new model has been lengthened and the power increased to 130-40 h.p. The engine was designed also for fast cruising work. The entire upper base has been made of vanadium or manganese bronze and of a barrel type, thus increasing its strength and rigidity. There appear to be no freakish points about it. Drawings show the base supplied with large hand-hole plates making the interior easy to get at. All journal caps are directly supported between each cylinder. The crankshaft is of chrome nickel steel, claimed to have a tensile strength of 112,000 pounds to the square inch. One of the interesting features about this new engine is that its construction permits it to be suspended on three-point bearings if desired. This is very necessary in hydroplanes where there is frequent change of hull causing change of alignment. An-

other engine which the Sterling Co. are about to introduce is a new long stroke cruising motor designed for heavy duty work. It is a 25-35 h.p. engine with a 5½ in. bore and an 8 in. stroke. The length of stroke is some-



Motor boat used for halibut fishing by Company H, 16th Infantry, at Fort Wm. H. Seward, Alaska.

what unusual, but experience has shown the Sterling Company that for heavy cruising work this type of engine is the best adapted.

Combination Lifeboat and Runabout.

Mr. R. A. C. Smith, owner of the sea-going yacht, Privateer, has just received from the Atlantic Co., of Amesbury, Mass., one of their 25-foot semi-speed clipper motor boats,

equipped with a 10 h.p. engine and reverse gear. The boat will be used as a tender to Privateer. She is provided with air tanks, complying with the Government lifeboat specifications. The air tanks have capacity for floating 22 people in addition to the weight of the hull. The regulations of the Government require that all sea-going yachts carry lifeboats, and the selection by Mr. Smith of this handsome model gives him the convenient combination of a lifeboat and fast runabout.

Havoline Oil Manufacturers Establish 'Frisco Branch.

The Indian Refining Co., of New York, manufacturers of Havoline oils, have organized the Indian Refining Co., of California, as a subsidiary corporation to handle their products on the Pacific Coast. Offices have been established in San Francisco in charge of H. R. Galtner and J. D. Van Eck, and arrangements are being completed to take care of the entire coast trade from that city. For several years Havoline has been handled in the West by W. P. Fuller & Co., of that city, through a selling agreement with the Indian Refining Co., but this arrangement has now been terminated.

Valley Boat and Engine Co. Reorganize.

The Valley Boat & Engine Co., Saginaw, Mich., have recently completed a reorganization. The officers of the new company are: Newell Barnard, president; A. G. Lockwood, vice-president and purchasing agent; M. H. Rockwell, secretary. The company will continue to build frames and other boat material with a line of five stock boats of "Faultless" construction, to be placed on sale at very reasonable prices. The stock designs of these boats are new and original.

Denton & Flagg Secure Selling Rights of U. S. Ball Bearings.

The United States Ball Bearing Mfg. Co., of Oak Park, Ill., manufacturers of the well-known U. S. annular bearings, have awarded Messrs. Denton & Flagg, of Cleveland, Ohio, the exclusive selling rights of their bearing.

Mianus Moves Office to Stamford.

The Mianus Motor Works, Mianus, Conn., have announced the removal of their office from Mianus, Conn., to Stamford. The company also have a New York office located at 76 Front St.



New store of Arthur P. Homer, naval architect and marine broker. It is located at 156 State Street, Boston.

Columbians Win on the Columbia.

The annual regatta for the Pacific Coast championship, which was held on the Columbia River at Astoria, Ore., has been declared the best regatta ever held in that section of the country. It brought before the motor boat eye Oregon Wolf, apparently one of the fastest boats in the country, her average for a 30-knot race being 34.38 nautical miles per hour. This result has led the owners of Oregon-Wolf to decide to challenge Dixie IV to a match race. It is a noteworthy fact that Oregon-Wolf as well as all the other winners in the Astoria Regatta, carried Columbian speed propellers. In other words more than \$10,000 in cash was won in this regatta by boats equipped with the Columbian product.

H. G. Trout Co.

Owing to the death of Mr. Henry G. Trout, it has become necessary to reorganize the firm of which he had been for many years the head. It is the hope of the company to succeed in serving their old friends as well in the future as in the past, and they wish to thank all interested for past favors. The officers and directors of the company for the ensuing year are as follows: Wm. B. Trout, president; Lillian G. Trout, vice-president; Herbert G. Walker, secretary and treasurer, William Mumery and Edward H. Reading.

Teal II — Another Fast V-Bottom 22-Footer.

Teal II is one of the many successful exponents of the now famous V-bottom construction which have come out this season. Built by the Marine Construction Co., of Toronto, she began her career with the rather remarkable record of winning a race which started only an hour after she was launched. She is equipped with a Reynolds 15-20 horsepower motor, and won the 15-mile handicap race of the Toronto Motor Boat Club, taking down the Past Commodore's Cup, one of the best trophies of the year. The motor had been used in Teal I, which had sunk, and consequently it required a thorough cleaning. An engine which can be taken out of a sunken boat, be torn down, cleaned, and reassembled and go out within an hour and win a stiff race, furnishes considerable food for thought.

New Anderson Agency.

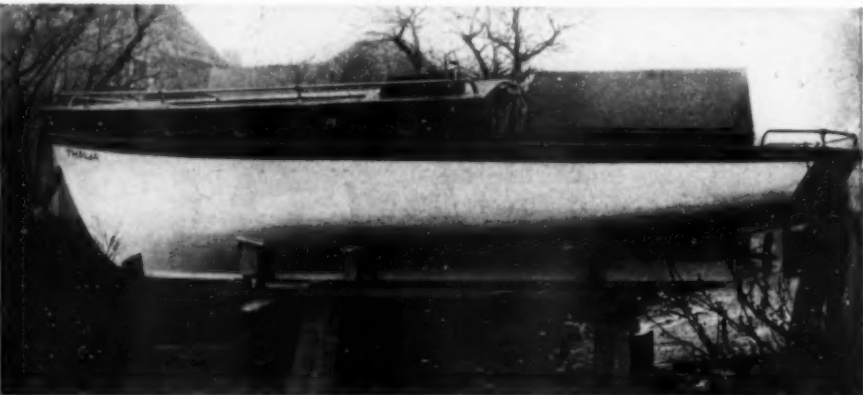
Charles M. Solheim, of Great Kills, S. I., N. Y., has secured an agency for the Anderson line of marine engines. The Anderson Co., whose factory is located at Shelbyville, Ill., have recently become members of the National Association of Engine & Boat Manufacturers.



Breeze I was designed by her owners, S. S. and R. P. Breese. She is a 19' 11" hydro, with three planes. At high speed she runs on a few inches of the forward plane, about a foot of the midship plane, and a few inches of the stern plane.

Pioneer Boat and Pattern Co. Cut Loose from National Boat and Engine Co. The Pioneer Boat & Pattern Company, of

Ferro around Staten Island for twenty-four hours, without pulling the switch. The engine did not miss a single explosion during the time.



Twenty-six foot stock cruiser, built by the Patterson Boat Works, and sold, fully equipped, for \$550.

Bay City, Mich., have severed all connection with the National Boat & Engine Co., a corporation organized under the laws of Maine,

in New York City. It is located at room 726, 30 Church St., New York, which is a part of the Hudson-Terminal Building.

Michigan Wheel Co.'s Catalogue Out.

The Michigan Wheel Co., of Grand Rapids, Mich., one of the largest concerns of its kind in the United States, have issued their 1912 catalogue. It is larger than any previous catalogue and includes many new articles, among which may be mentioned a new racing wheel called the hydroplane, which is designed especially for hydroplane boats, and is somewhat on the same lines as the Dixie wheel, which has been produced by this concern in large numbers. The Michigan Wheel Co. make a specialty of reverse gears, steering wheels, deck trimmings, underwater exhausts, universal joints, propeller jacks, rear starters and propellers of all designs.

Miller Opens Two New Branches.

Chas. E. Miller, the well-known automobile and motor boat supply man, has recently opened two new branches. One is located uptown in New York at 2782 Broadway between 107th and 108th streets. The other is in Albany at 135 Central Avenue. The new branches will carry the same stock that is carried at the main headquarters, 97 Reade Street, New York, and will be in position to fill orders promptly, with a saving of time and express charges for the purchasers.



Wakaiti, owned by James Park, Mokitika, N.Z. With her sails and her two 17-h.p. Ferros she has cruised extensively in New Zealand waters.

The December Issue.

The December issue of MoToR Boating will be the Second Annual Buyers' Reference and Export Number. It will be devoted to the American motor boat industry and its allied branches and will be invaluable to the prospective buyer both in this country and abroad.

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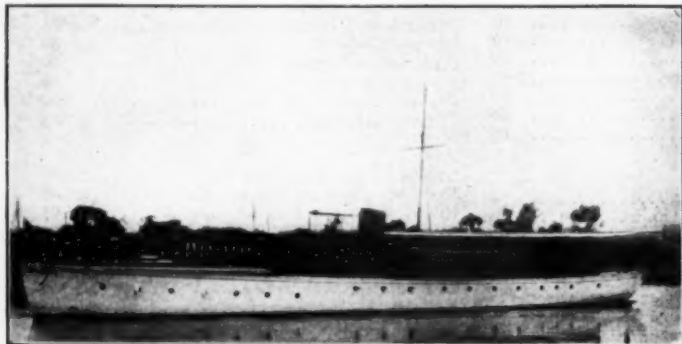
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

Telephone
1375 Broad

15 William Street
New York City

We have a complete list of all steam and power yachts, auxiliaries and houseboats available for sale and CHARTER for WEST INDIES and FLORIDA. A few are shown on this page. Plans, photographs and full particulars mailed on request.



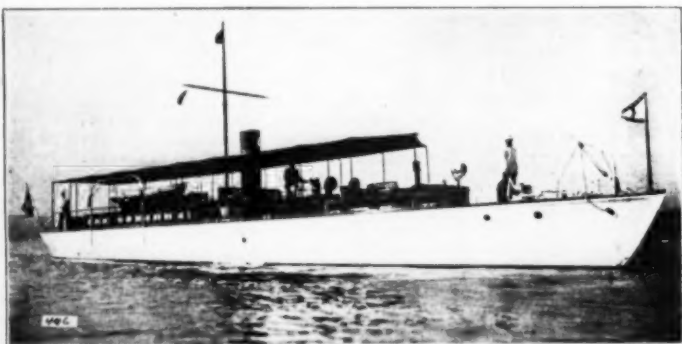
No. 883.—118 ft. fast, twin screw steel power yacht; speed 16 to 18 miles; three double staterooms, two saloons, two baths, etc.; exceptionally handsome craft; best of type available.

Please mention MOTOR BOATING.



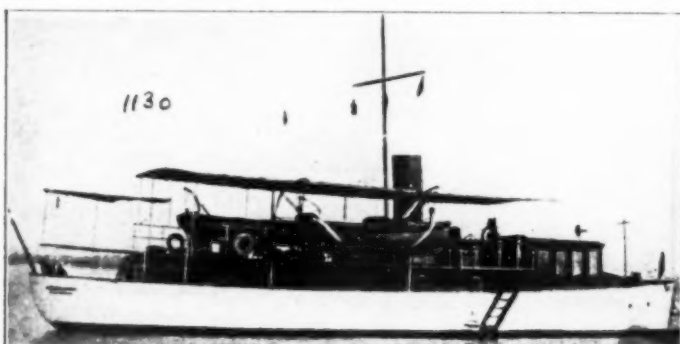
No. 994.—For Sale or Charter—Splendid 83 ft. cruising power yacht; built 1910; speed 13-15 miles; 100 H. P. Standard; price attractive.

Please mention MOTOR BOATING.



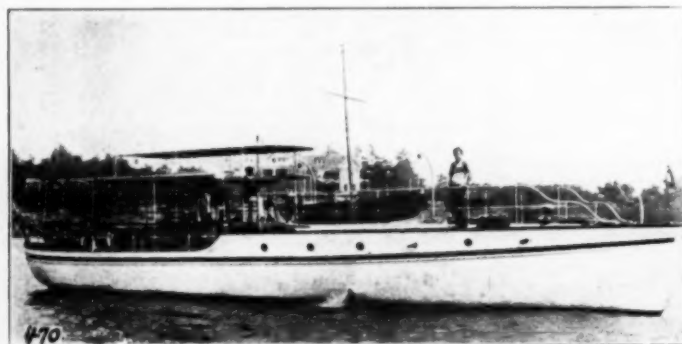
No. 446.—91 ft.; fast, twin screw power yacht; speed 18 to 20 miles; Craig motors; double stateroom, large saloon, etc.; exceptional bargain.

Please mention MOTOR BOATING.



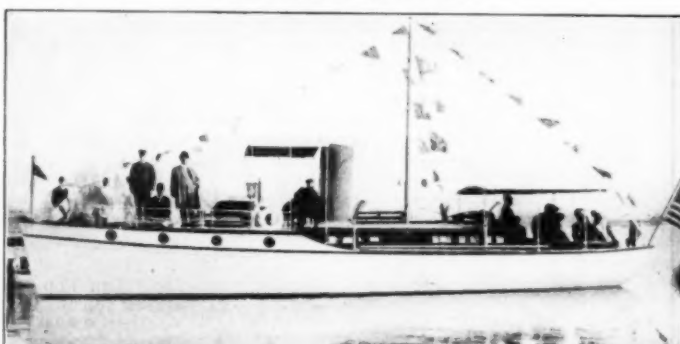
No. 1130.—Bargain; 70 x 14 ft. power yacht; built 1910; speed 14 miles; 100 H. P. Standard; large accommodation; very able craft.

Please mention MOTOR BOATING.



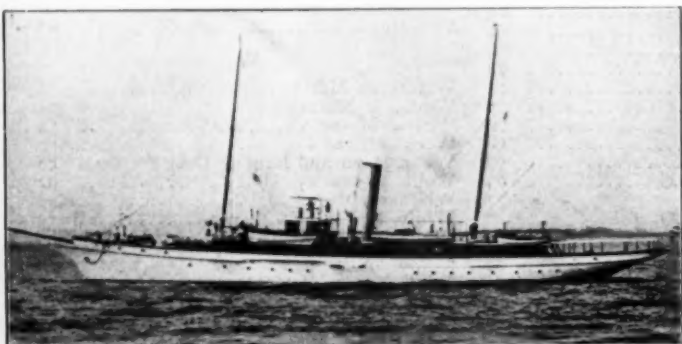
No. 470.—For Sale—60 x 12 ft; raised deck cruiser; speed 11 miles; double and single stateroom, 12 ft. saloon, etc.; first class condition.

Please mention MOTOR BOATING.



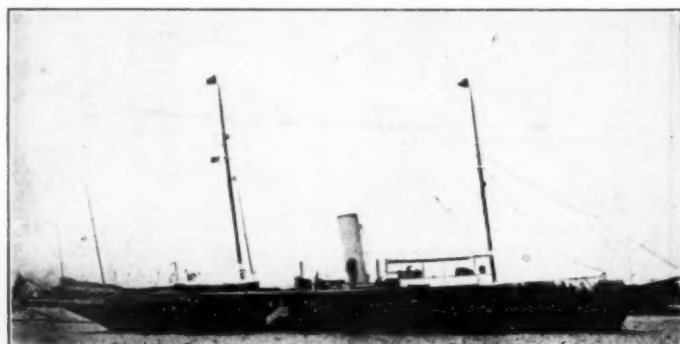
No. 1091.—Exceptional bargain; up-to-date 50 ft. bridge deck cruiser; built 1910; speed 11-13 miles; 55-65 H. P. Sterling; double stateroom; 10 ft. saloon, etc.

Please mention MOTOR BOATING.



No. 238.—200 ft. steam yacht; ten staterooms; continuous deck house; good sea boat.

Please mention MOTOR BOATING.



No. 39.—175 ft. steam yacht; seven staterooms; modern vessel; Economical and fast.

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STANLEY M. SEAMAN

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3479 CORTLANDT

YACHT BROKER

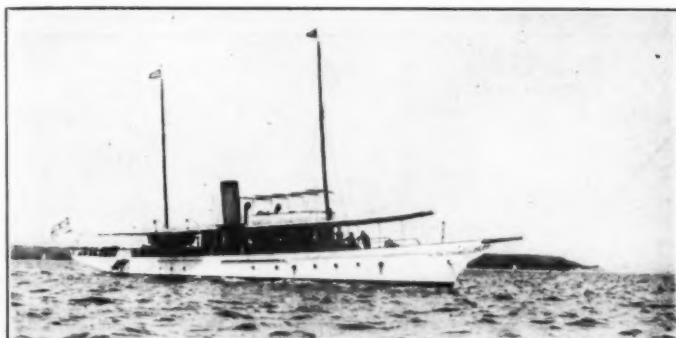
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(ESTABLISHED 1900)
220 BROADWAY, NEW YORK

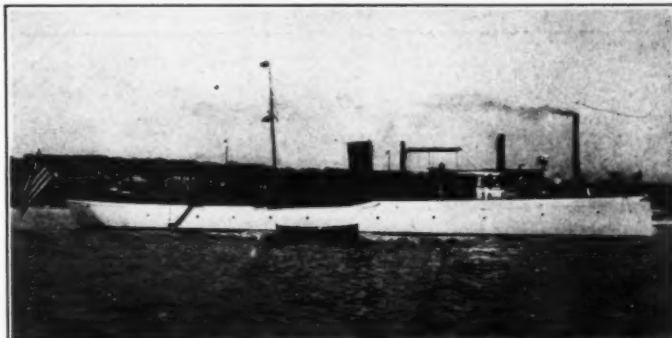
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If wanting to buy or charter a Yacht of any size or type, advise your requirements—full data of best available offerings will be sent or representative will call promptly. Yachts listed for sale gratis.



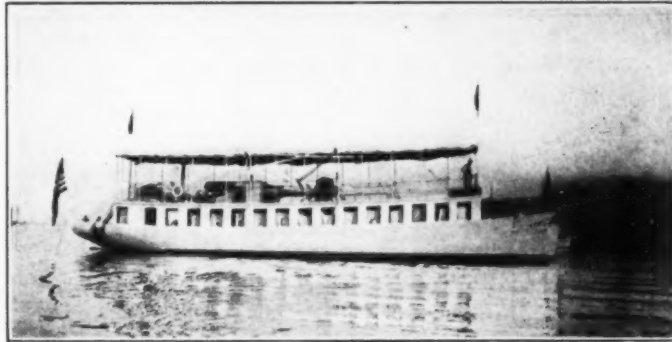
For Sale—No. 2697.—143 ft. steel steam yacht; speed record 20 miles; 5 staterooms; 2 saloons; new boiler, new decks, electric plant; perfect condition throughout; sell reasonably; accept smaller boat part payment. Address Stanley M. Seaman.
Please mention MOTOR BOATING.



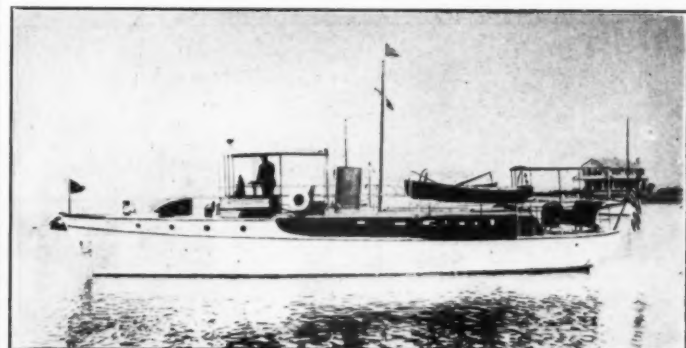
For Sale—No. 6737.—Twin screw Lawley coast gasoline cruiser, 113 o. a., 15½ beam; extra heavily built, double planked; 5 steel bulkheads; 5 staterooms and saloon berth 10; bath; two 150 H. P. Craigs; speed 15 miles; perfect condition. Apply to Stanley M. Seaman.
Please mention MOTOR BOATING.



No. 6582.—96 ft. Twin Screw Lawley Coast Cruiser; 3 staterooms. Two 50 Standards; 10 knots. Complete. Reasonable price. Apply Stanley M. Seaman.
Please mention MOTOR BOATING.



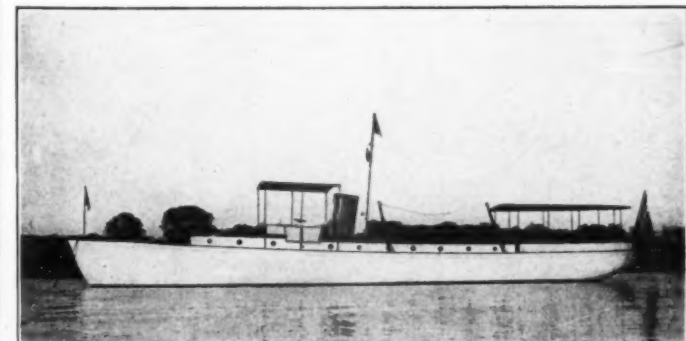
For Sale—No. 6699.—Ideal Southern cruiser, 70 o. a., 16 beam; 3.9 draught; exceptionally heavily built; 2 inch yellow pine planking; large open cabin, berths 8 people comfortably; headroom over 7 feet; 2 toilets; 60 Craig; speed 9 miles; economically maintained—crew 3. Low price. Apply to Stanley M. Seaman.
Please mention MOTOR BOATING.



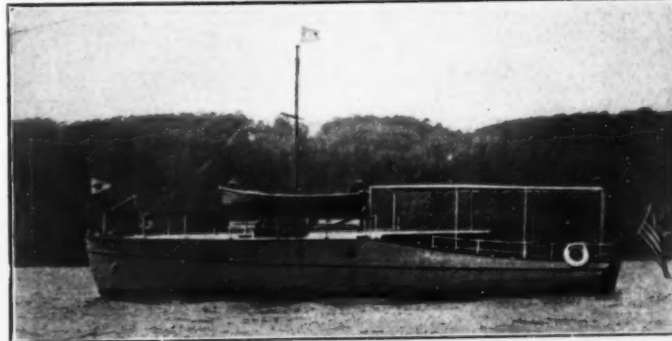
For Sale—No. 6703.—57 ft. coast cruiser; launched 1909; owner's double stateroom and large saloon, berth 6; 2 toilets; mahogany interior; electric lights; 40 H. P. Jager; speed 10-12 miles; complete equipment—2 tenders; owner purchased larger boat, will sell for low price. Address Stanley M. Seaman.
Please mention MOTOR BOATING.



For Sale—No. 6685.—Lawley 60 ft. cruiser; draught 3.6; excellent seaboat; extra heavy construction; 4 staterooms; 2 large saloons; bath; 25 H. P. Standard; speed 7½ knots; complete equipment; reasonable price. Address Stanley M. Seaman.
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For Sale—No. 6684.—60 ft. Cruiser. Two 30 h. p. 6 cylinder engines; 12 miles. Sleeps 6 separately, besides crew. Perfect condition throughout. Asking \$5,000, accept smaller boat. Any reasonable offer considered. Seen New York. Address Stanley M. Seaman.
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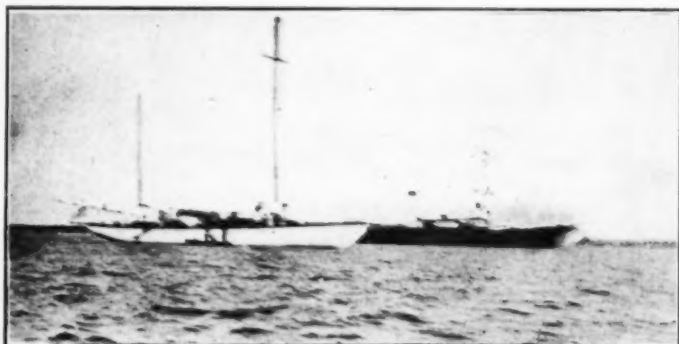
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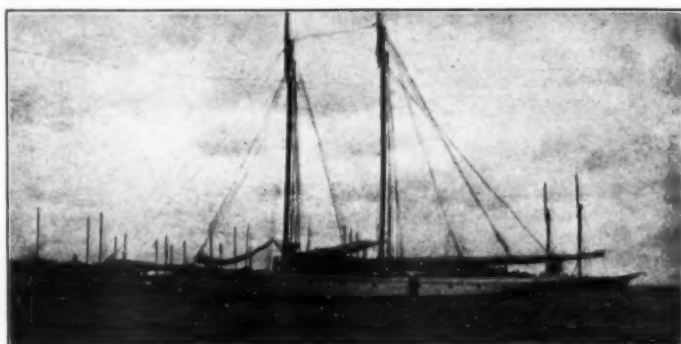
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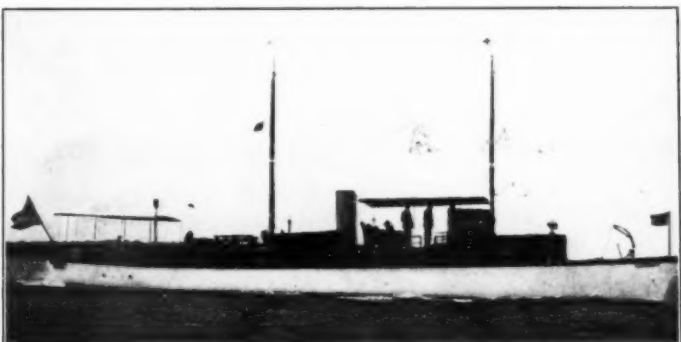
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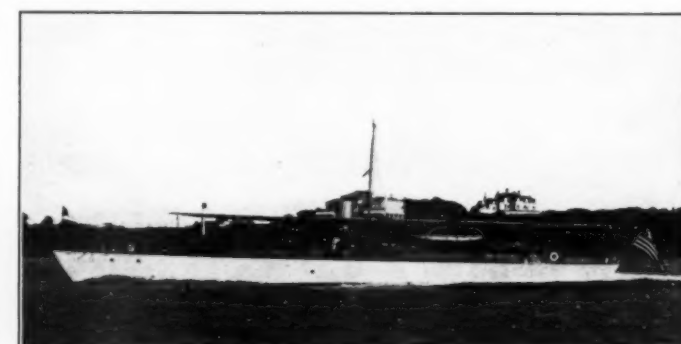
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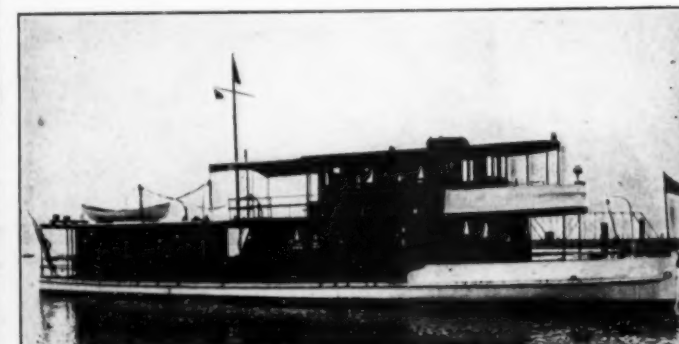
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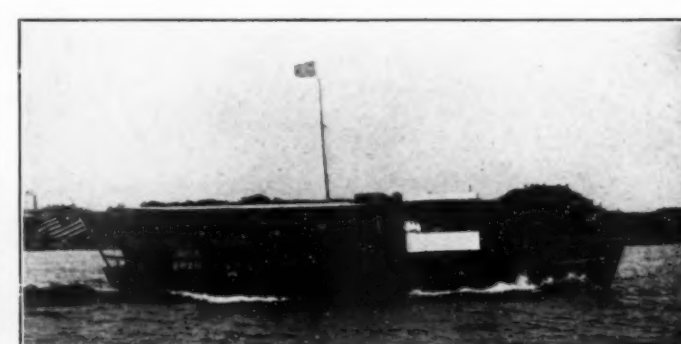
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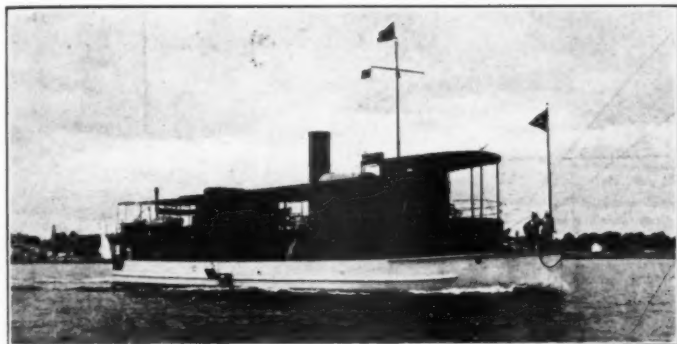
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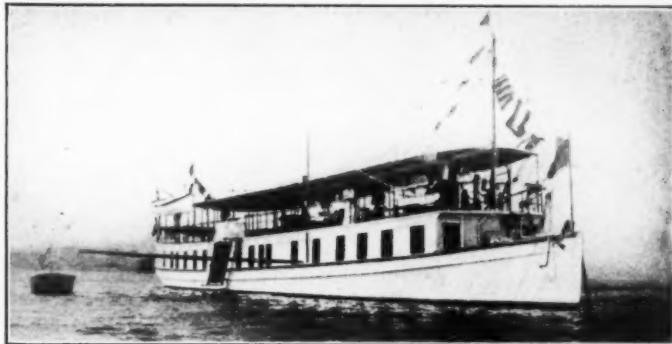
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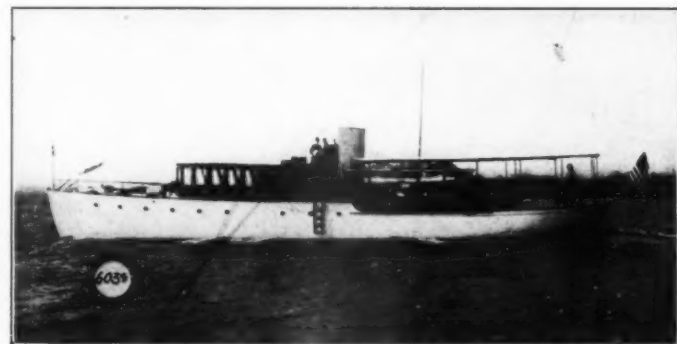
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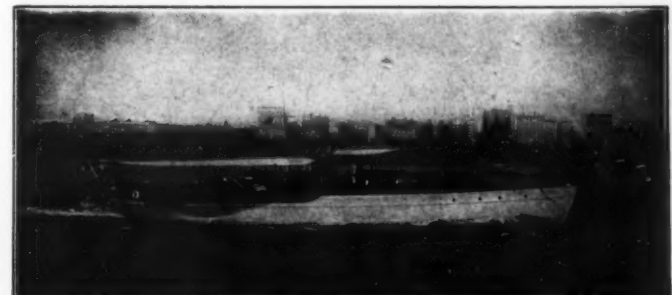
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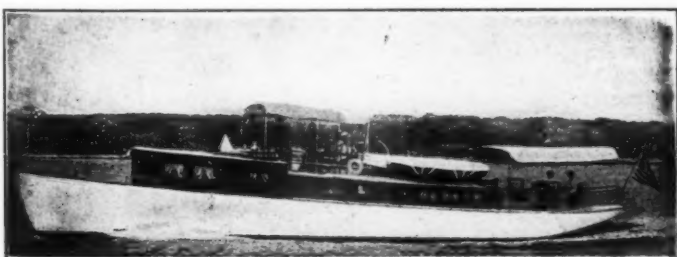
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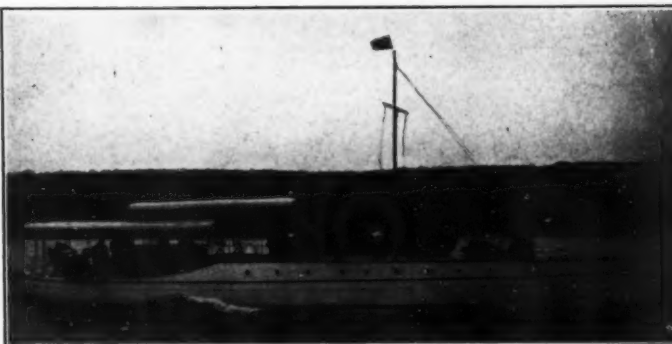
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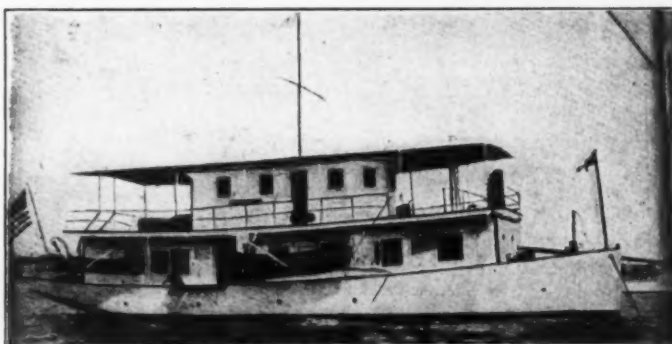
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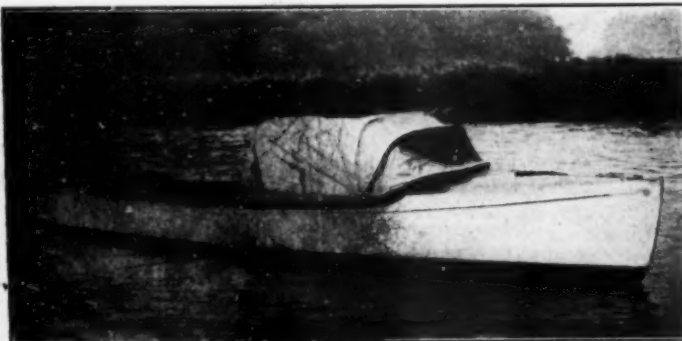
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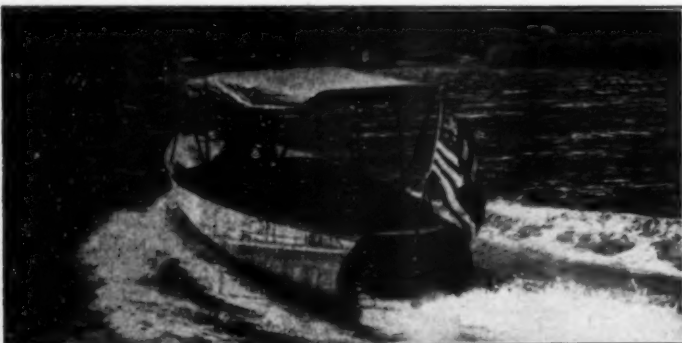
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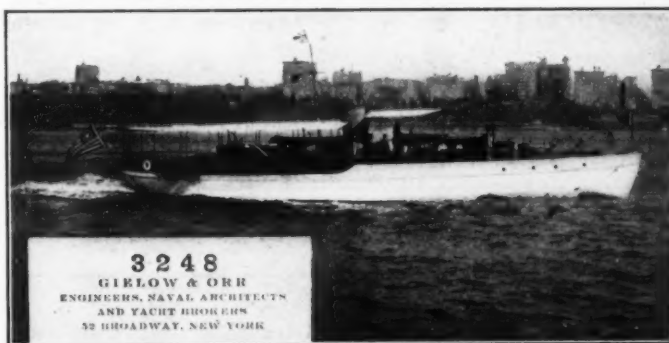
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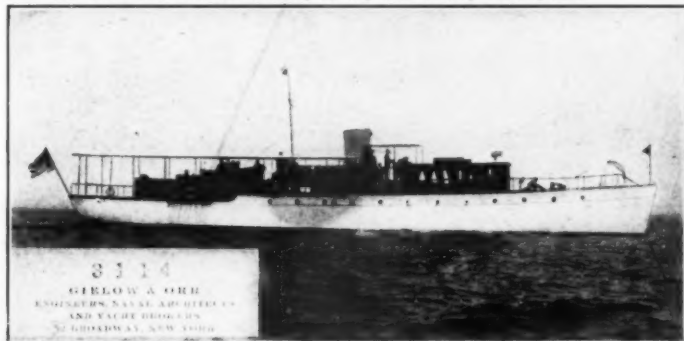
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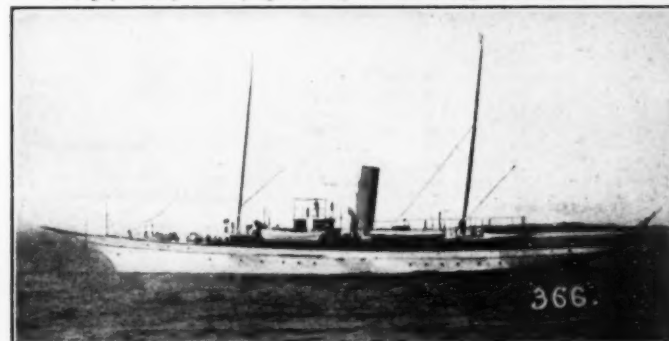
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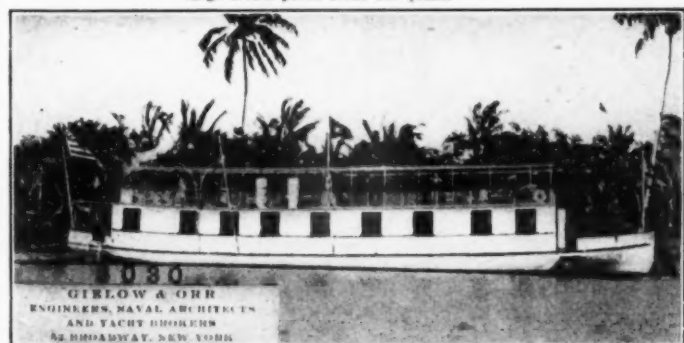
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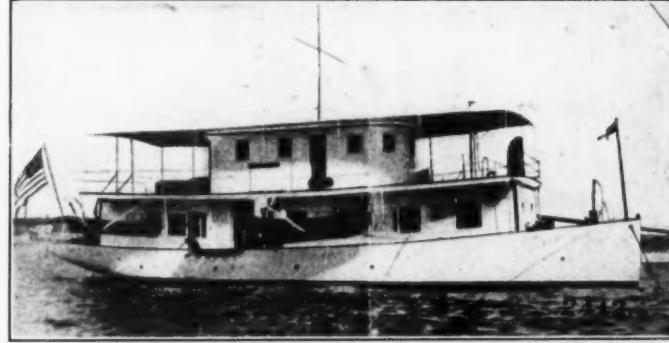
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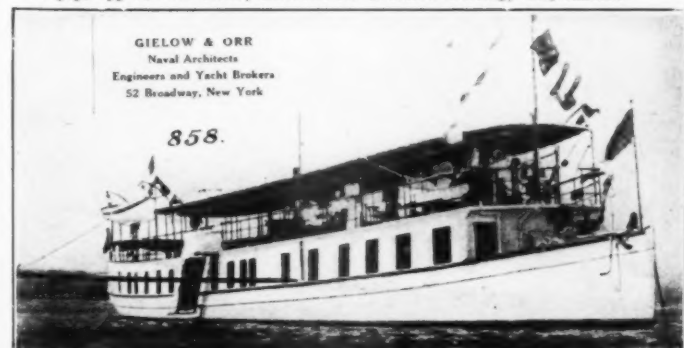
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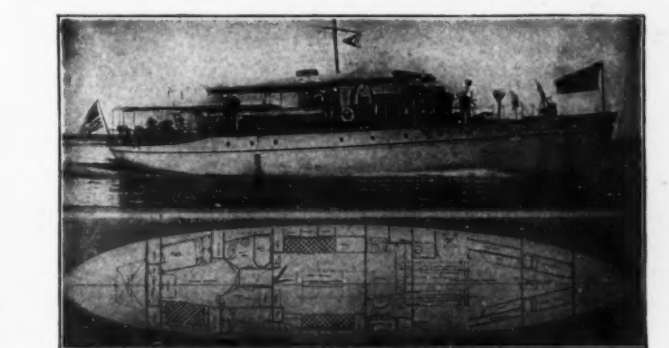
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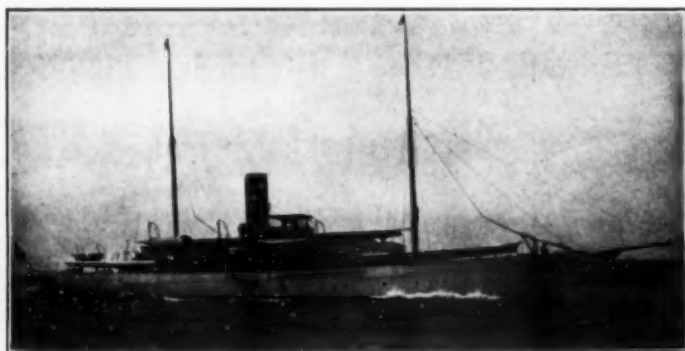
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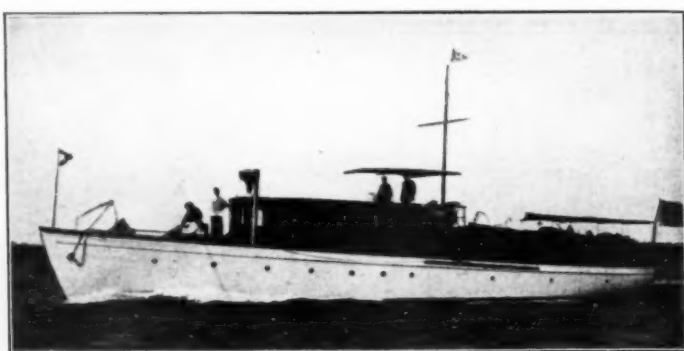
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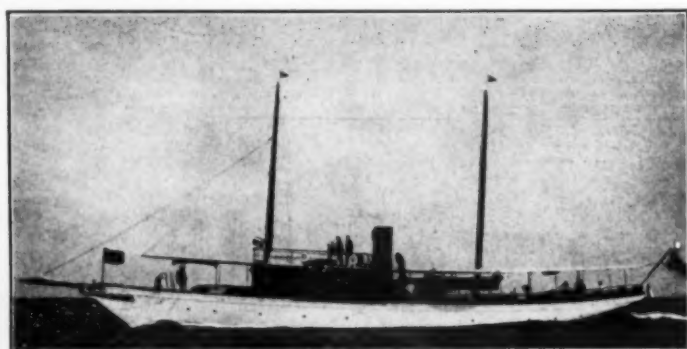
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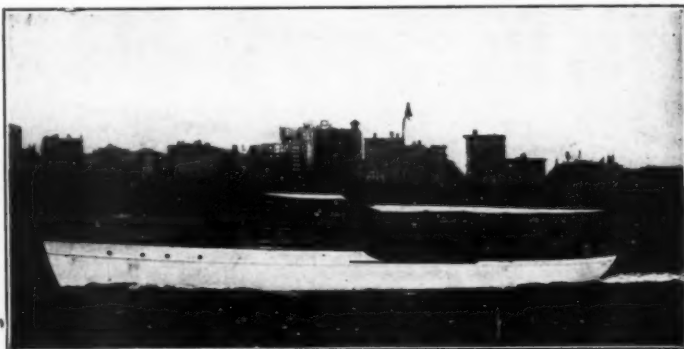
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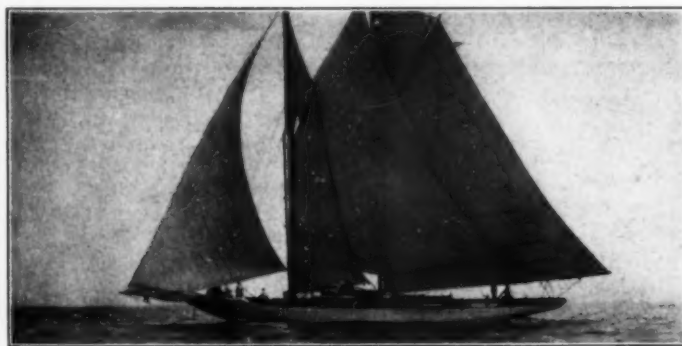
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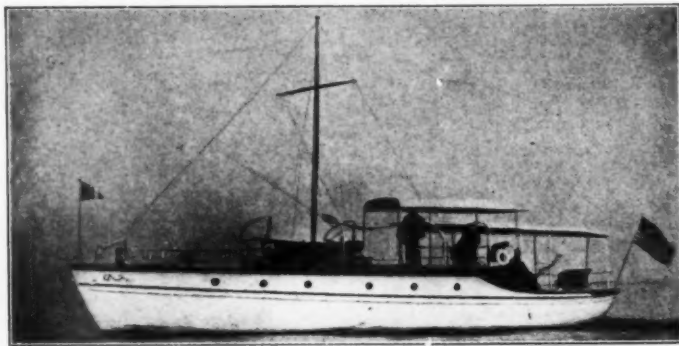
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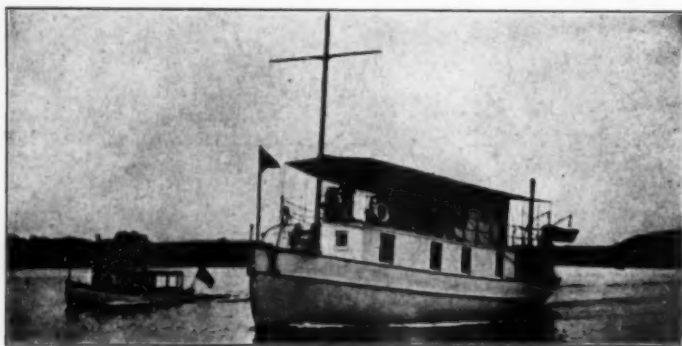
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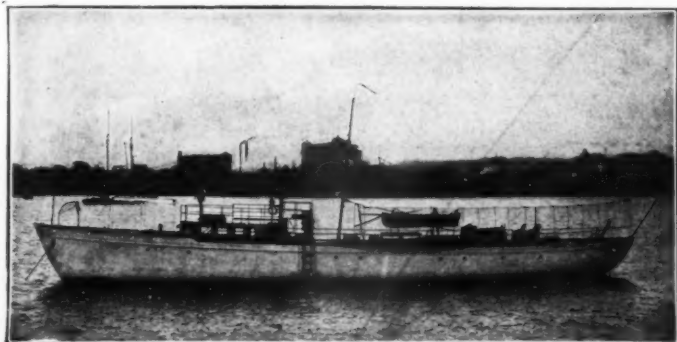
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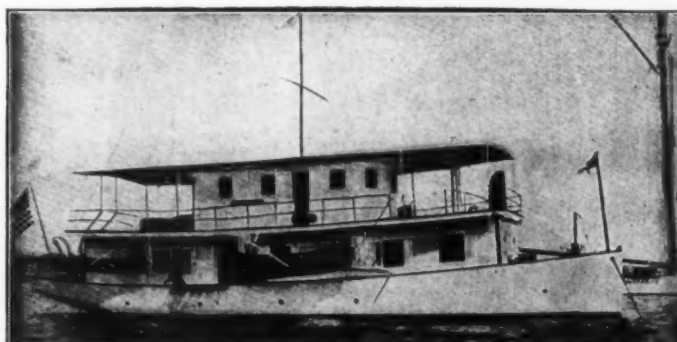
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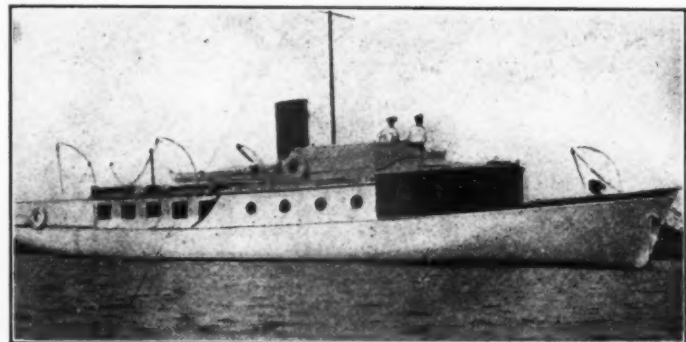
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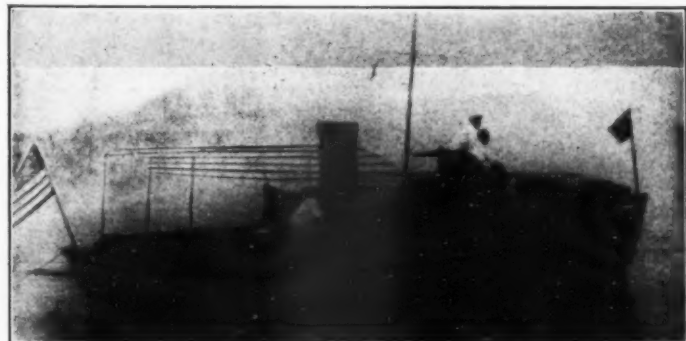
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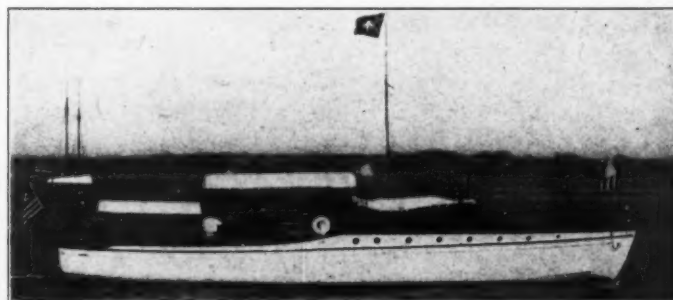
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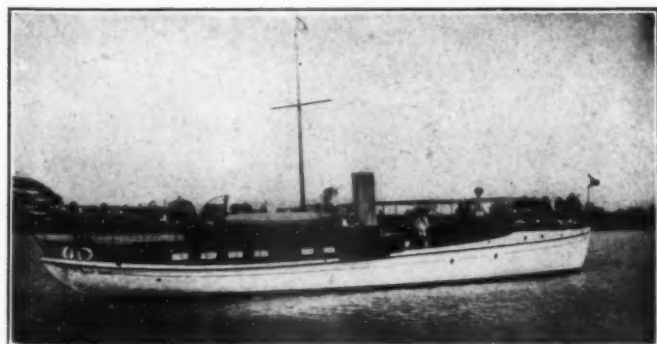
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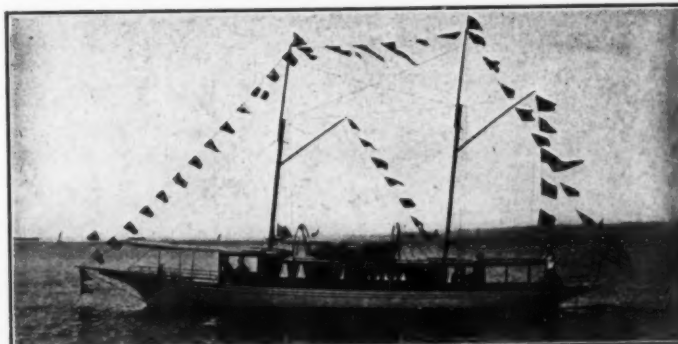
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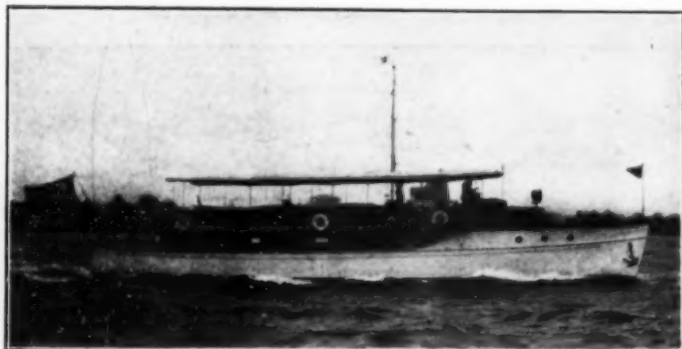
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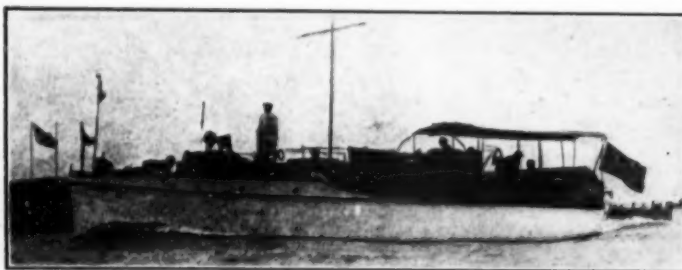
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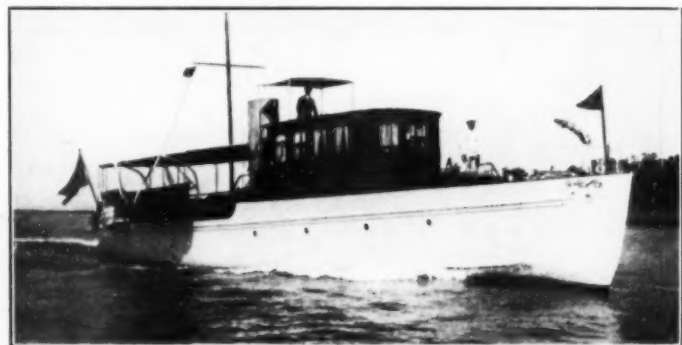
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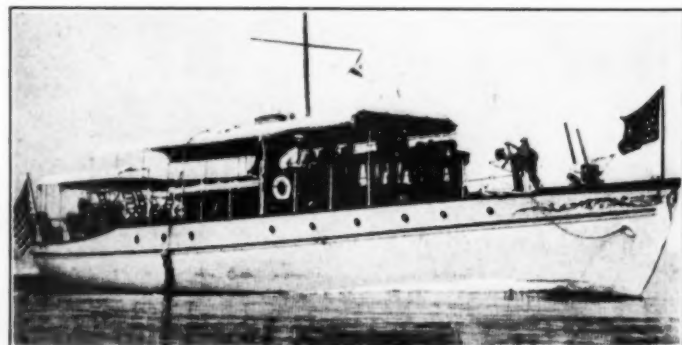
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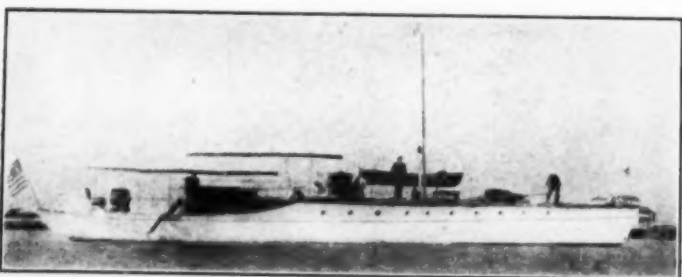
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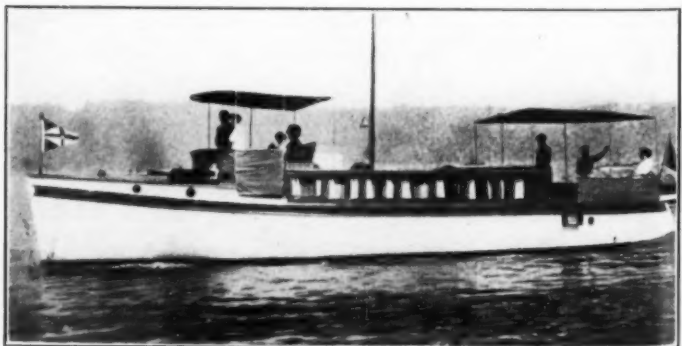
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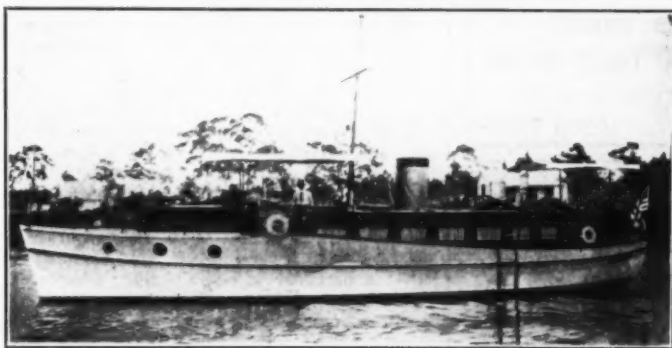
In the Market Place

MoToR Boatin'G's Market Place columns offer the buyer and seller of used motor boats, fittings, etc., a quick and convenient medium of exchange.

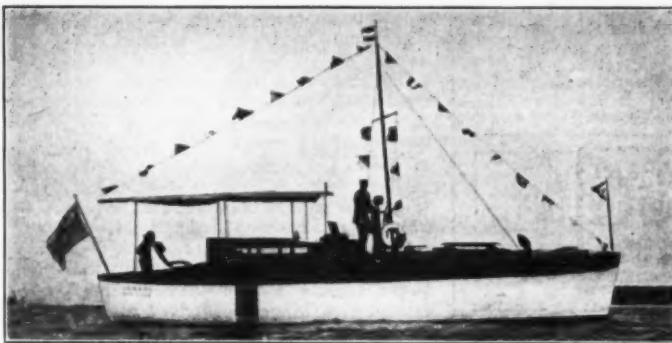
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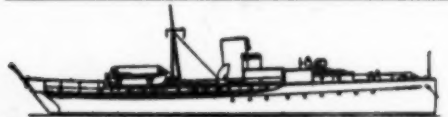
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To Montreal and Back Again.

(Continued from page 35.)

bridge, close to the starboard shore, we bucked some tide for another hour and found ourselves in the big, well-buoyed Chambly Basin.

About twenty barges were lined up on the south side near the entrance to the three neat, high locks towering one above the other at the town of Chambly. We obtained our pass to the 12-mile Chambly Canal and put through at once. In the setting sun we rose high over the river and wended our way through the pretty Canadian Canal. The little swing bridges and the nine locks gave us no delay, and we reached St. John's, Que., before nine o'clock. A supper at the Abington Hotel, a glance at the Montreal accounts of our trip, and we were ready for bed.

At 8 a. m., Friday, July 28th, we passed Fort Montgomery into United States waters with a cheer and soon after passed the Grand Trunk Drawbridge and tied up at Rouse's Point. Thanks to our forced stays at Fulton and St. Anicet, we had some hustling ahead of us to get in on schedule. A Doctor Marnes, whose boathouse with his name on the roof was plainly to be seen, befriended us, and hearing of our bent propeller, a St. Lawrence and Richelieu souvenir, offered the use of the tackle in his boathouse for raising our stern. We gladly accepted and with the aid of the doctor and the village smith, hoisted her with the ladies still asleep, and hammered the wheel back to pitch. A gasoline dealer on the spot sold us 60 gallons at 15¢, and after provisioning we sailed out past the lighthouse and south into Lake Champlain at 12 o'clock noon.

We obeyed the buoys and went to Plattsburgh, keeping to starboard of the breakwater at that city where we arrived at 3:15 p. m. After tying up for two hours we sailed with telegraphic instructions from Mr. Henri van Dam, our dictator in things financial, to be back on Monday without fail. That was decisive, and calling the entire crew together we exacted his solemn oath to do it or die in the attempt. We followed the beautiful New York, or western, shore, passing inside the islands till the waning day turned to darkness, and the beacon lights near Burlington, Vt., showed dull through the nine miles of ever-thickening mists. We neglected our steaming suppers as we strained our eyes ahead to make out the light at Split Rock Point, but the heavy rain beginning to fall confused it with many others and at 9:30 we made for some town lights to starboard. Someone showed a lantern and helped us tie up. He said the town was Essex, N. Y., and so we went to sleep in Essex.

At 5:30 a. m. we made our break and followed the Vermont shore of the magnificent lake, gradually growing narrower, and passed Fort Ticonderoga at 10:30. In less than an hour's running through this mountainous district, we were in places where one could talk from "dry" Vermont to a person in New York State. The narrow, winding channel was between marshy banks as well as rocky points and was excellently buoyed by a series of black and red numbered beacons.

We arrived at Whitehall, N. Y., the entrance to Champlain Canal, at about noon, Saturday, July 29th, having in one day made the entire 110 miles of Lake Champlain, including the night's stop and the Plattsburgh's stop. One barge canal lock replaced the three that formerly were there, and after entering we unstepped our mast for the first time in a week.

Whitehall appeared to be all broken up for the new canal construction and a very miserable place it seemed to us. We left at about 3:30 and six miles away made another barge lock where they claimed that pleasure boats could only be locked every six hours. We got through anyhow and at Fort Ann, twelve miles from the start, had to stop. A string of eighteen barges were being locked one at a time through the single lock. We had to wait

(Continued on page 64.)

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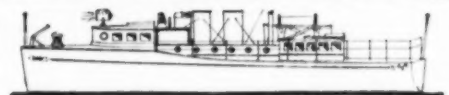
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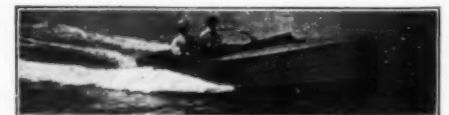
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To Montreal and Back Again.

(Continued from page 62.)

our turn meaning a delay of about half an hour per barge, but were fortunate in getting through with a tug at about 10:30 p. m., both being narrow and able to pass between the terribly close banks above the lock together. The Spindrift, of Albany, and many other cruisers bound north, were less fortunate and had to wait till morning as there was no room to pass the remainder of the barges above the lock.

We steered in shifts and took several locks till about 1 a. m. when the dismaying shadows got on our nerves, despite our searchlight, and we tied up until 4 a. m. by Fort Edward. Without much further delay we finished the balance of the canal's 38 miles and got to Waterford before noon. We had passed many cruisers, and had towed a canoe with two chaps for the last twelve miles. The Champlain lock tenders do not like our kind. At Waterford, the pilot's home, we went down the three deep locks with his proud son and grandson aboard, and back into our Hudson River just above Troy. After leaving the lock we had kept close to shore and after crossing the Hudson hugged its eastern bank. In the lock by the Troy Dam, our canoeist friends had the first misadventure of their summer trip. The rushing waters tipped and filled their craft, and their dog and outfit were washed overboard. The boys clambered into our tender with the dog while we fished out their things from the foam.

We dropped the pilot and putting in 60 gallons of gas at the Albany Yacht Club we started on the last leg of our journey at 3:45 p. m., Sunday, July 30th. The upper Hudson was crowded with pleasure craft and we made Catskill by dark. The lights near Kingston Point, however, were either defective or inadequate, for we went aground at about 11 p. m. The swells from the night boats passing close to both shores dislodged us about midnight. At one o'clock we did the same stunt. After an hour's ineffectual work to get clear we all went to sleep, and awoke at 4:30 to find ourselves free and drifting.

We passed Poughkeepsie at 7 a. m. and picked up our mooring at the Columbia Yacht Club, New York, Monday, July 31st, at 3 p. m. We had completed the circuitous route on schedule time, having made over 1,200 miles within fifteen days. In righting the rudder after making fast the Oswego splice to the tiller rope gave way and we went ashore.

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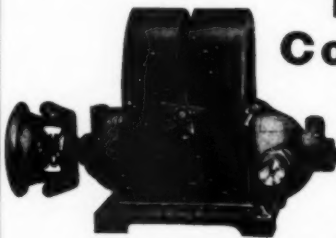
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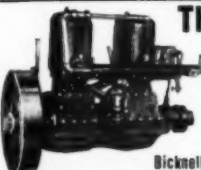
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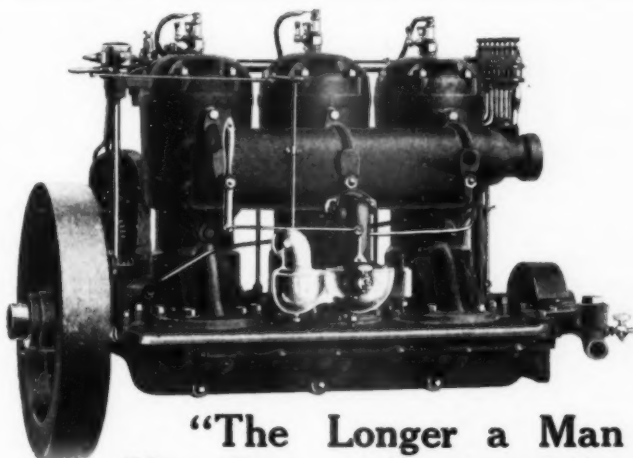
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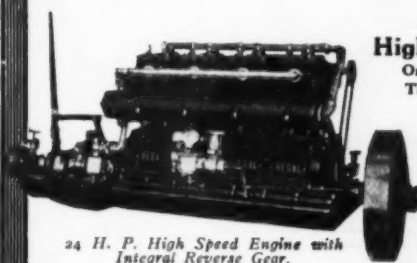
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The Dayton Electrical Mfg. Co.
188 ST. CLAIR STREET, DAYTON, OHIO

The Best Position for the Motor.

(Continued from page 23.)

important point in a cruiser, for a "six-foot man takes a six-foot bunk to sleep on." The other important consideration is that of accessibility and in position 3 the engine and clutch can be made almost, if not just as accessible, as in location 2. To me the balance of favor points to location 3. Of course, the above refers only to the small cruiser, and I have made no mention as to the effect of the three locations on the trim of the boat; this should be taken care of in designing the boat.

H. H. PARKER, Oakland, Cal.

Yard and Shop.

(Continued from page 50.)

Regal Tiger Uses Krice Carburetors.

Regal Tiger, one of the fast speed boats of the Middle West, is powered with a six-cylinder Pierce-Budd motor, to which are attached six Krice carburetors. In the races of the Illinois Valley Yacht Club, this boat, notwithstanding the fact that a minute and thirty seconds was lost at the start of the 20-foot class event, passed all competitors but one, and finished second. The owners consider that much of their success with Regal Tiger is due to her carburetors, in which they state they have the utmost confidence, and consider the Krice product one of the most reliable and easiest carburetors to regulate and operate on the market to-day.

Monitor Boat and Engine Co. Expand.

The Monitor Boat & Engine Co., of Newark, N. J., builders of the Monitor knock-down boat frames, have recently made an agency arrangement with Mr. J. Burr Tiffany, Jr., formerly of Yonkers, N. Y., for the sale of their frames in the Northwest, including British Columbia, Washington and Oregon. Mr. Tiffany has opened an office in Vancouver, B. C., and being on the ground, will assure to the purchasers of knock-down boats, successful construction in every case. The new plant built by the Monitor Co., on Emmett St., in Newark, N. J., last March, has just been increased by an addition doubling the size of the first building erected, making it one of the most complete plants for the manufacture of knock-down boats in the United States. The new catalogue, just issued, will be sent free to any reader of MoToR Boating.

"Valspar Still on Deck."

Mr. Thomas Fleming Day's trans-Atlantic trip in Sea Bird has attracted world-wide attention and his successful completion of the journey has brought him many congratulations. Mr. Day gave his personal attention to the selection of the varnish, on account of the arduous test to which it was to be subjected. The fact that Valspar would not turn white, even when kept immersed in water, had attracted his interest, and accordingly the little boat was varnished with Valspar. The manufacturers received the following characteristic postal card from him, dated "Gibraltar," immediately after his arrival there: "Valspar still on deck."

Idylease Built from "Faultless" Frames.

Idylease, the construction of which was described by Charles E. Grush in the October issue of MoToR Boating, is a good example of what it is possible for an amateur to do in boat building, if given a good knock-down frame to start with. This comfortable, raised deck 29-footer is a boat of this variety, and when tried out proved to be a good sea boat and capable of making eight miles per hour. The knock-down frames and other material with which Idylease was constructed were procured by the builder and owner from the Valley Boat & Engine Co., Saginaw, Mich., the well known designers and builders of "Faultless" completed and knock-down motor boats.

Trade Literature Received

Monitor Boat and Engine Co., Newark.

Catalogue of Monitor knock-down boat frames, illustrated with designs. It contains a complete line of the company's products,

(Continued on page 68.)

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

JEFFERY'S MARINE GLUE

No. 7—Black, White or Yellow Glue, Soft Quality, for Waterproofing Canvas, etc.

Its peculiar properties are those of flexibility and durability, and although it becomes soft and pliant under heat, it still retains its adhesion to timber, fiber, etc., and is clean and insoluble in water.

Application to Planking of Boats

This Glue is made expressly for use in combination with calico between the double planking of diagonally built row boats and motor boats. Melt the Glue, and paint it on the first series of planks with a stiff wire-bound brush; the calico should then be laid on and ironed through; another coating of glue should be painted over, taking care to well cover the calico; after that put on the outside longitudinal planking, and apply the copper rivets in the usual way. The boat will then be found to be perfectly water-tight, and the Glue will expand and contract with the timbers without cracking.

One pound will waterproof three square feet of canvas. Send for directions for use.

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18' o.l., 4'-10" beam; draft about 12"; weight about 70 lbs. 3 1/2" bore, 3 1/2" stroke. Roper propeller, a n y speed from back ing up to full speed.

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5 Years' Guarantee Detroit Marine Engine

Fewest moving parts of any practical engine on the market. 25,000 satisfied users. 30 days' trial.

Demonstrator Agents wanted in every boating community. Special wholesale price on first outfit sold.

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BEAUTIFULLY FINISHED HIGH SPEED POWER BOATS AND CRUISERS OUR SPECIALTY :

WE MAKE MODEL OF EVERY BOAT AND TEST THE HULL THOROUGHLY BEFORE BUILDING :

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THE HIGHEST GRADE OF WORKMANSHIP WITH LATEST DEVELOPMENT IN CONSTRUCTION IS ASSURED :

SKETCHES AND SPECIFICATIONS SUBMITTED

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1 to 3 Miles Per Hour Increase Guaranteed

Many a motor is being blamed for lack of power, many a boat for lack of speed—merely because they are not equipped with efficient propellers. Before you replace your motor or sell your boat, give it a fair chance with a B. & B. Propeller.



The surest way to secure maximum speed from any boat is to fit it with a genuine B. & B. wheel in the first place. Don't take chances or handicap your boat with anything else.

Whenever you have occasion to buy or specify a propeller, whether it is for an old boat or a new one, remember our standing guarantee, five years old, to increase the speed one to three miles per hour with the B. & B. wheel.

Look for our name stamped on the hub of every genuine B. & B. Propeller and don't be misled by substitutes that look nearly like it. Even if they were cast from identical patterns, no substitute would be equal in material, finish or durability.

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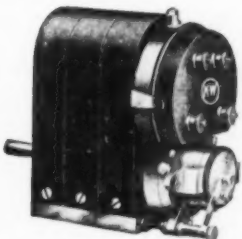
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That Satisfied Feeling

Your engine builder will furnish it if you

INSIST ON K - W

It costs more and is worth it. Won every race entered at Palm Beach Motor Races in 1911. Gives absolute synchronism and perfect timing at all speeds. Gets every ounce of power out of your engine there is in it.



Give description of engine when writing for catalogue.

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50 POWER AVE. CLEVELAND, OHIO, U.S.A.

Go

Motor Boat Owners

¶ Now that the Motor Boat season has practically passed, you are, no doubt, making your plans for next season.

¶ Some are possibly considering the purchase of a new engine; others intend to overhaul their present equipment.

¶ Whichever is the case, why not consider installing an ABSOLUTELY SAFETY front or rear starter? It will save you lots of inconvenience, as well as the danger of injury from "backfire." The "LOMBARD" starter entirely eliminates those objectionable features that are a part of the present methods of starting an engine.

¶ The cost is small, ranging in price from \$12.00 to \$30.00, depending on the model.

¶ Send me a full description of your engine and I will write you personally advising which of the four models would be best adapted to your engine.

¶ Adopted by 25 of the leading marine engine manufacturers.

"There Is a Reason."

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NIAGARA
AUTO-MARINE
STEERERS

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ECLIPSES ALL OTHERS
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ROYAL ENGINE

Royal engines are of the kind that keep running as long as they have a spark and gasoline.

They possess many valuable and distinct features.

Get our Catalogue and learn about them before purchasing.

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2½ to 25 H.P. two cycle
Powerful speedy reliable
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Goshen Marine Engines
1.2 and 3 Cylinders, 3 to 50 H.P.
Two port system with springless check valves
ASK US
Goshen Motor Works
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Belle Isle Motors

2 to 25 H.P. engines—the most perfect of their size ever offered. Built of best materials—few parts—consume little gasoline, kerosene or alcohol.

Send for free catalogue showing all models.

Concrete Form & Engine Co., 12 Motor Boat Lane, Detroit.

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The latest and most perfect development to magnetos and coils under a positive guarantee. Investigate for yourself. Write for literature today.

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MOTOR APPLIANCE CO. of AMERICA
Manufacturers of
THE MACO CARBURETOR
73 Warren St., NEW YORK CITY



LISKS MARINE ENGINES
4 CYCLE ONLY
1 to 6 Cylinders. 5 to 40 H.P.
Manufactured by
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A-B-C LIFE PRESERVERS

Safer, smaller, lighter, more buoyant and durable than any other. Float indefinitely. Made of specially prepared South American wood, covered with best white duck or khaki.

Wolin Davit and Lane and DeGroot Co.
(Consolidated)
315 Vernon Ave., Long Island City, N. Y.

Trade Literature Received.

(Continued from page 66.)

including knock-down frames for the successful and easy construction of open and cabin pleasure boats, business boats, mail and express boats, and passenger and freight carriers.

United States Dept. of Agriculture, Forest Service, Washington, D. C.

Bulletin No. 90, entitled the "Relation of Light Chipping to the Commercial Yield of Naval Stores," by Charles H. Herty, Ph. D., Professor of Chemistry, University of North Carolina, and Expert, Forest Service.
Atlantic Co., Amesbury, Mass.

Booklet containing a short history of the Gurnet Dory and its development, and a description of the Clipper motor boat. Following this, alternate pages show half-tone reproductions of the boat in action, and line drawings of the standard design of these boats in 16 to 30 ft. lengths. On the cover page is a reproduction from a photograph of the schooner Polly, which was a privateer in the War of 1812, built in Amesbury in 1804, and is still in business in the coasting trade.

The Cleveland Auto Boat Mfg. Co., 1036 West 111th St., Cleveland, O.

Circular entitled "What the Motor Boating Industry is To-Day," and concluding with a description of the stock models known as Auto Craft, manufactured by this company.
Pierce-Budd Co., Bay City, Mich.

Complete catalogue with post-card inserts showing speed boats equipped with Pierce-Budd motors.

The Second Kathmar.

(Continued from page 41.)

usually light and airy with large plate glass windows, ports and skylight.

A very spacious galley, a feature that the company is known for, is provided. It is finished in clear natural spruce and contains a good size French range, an ice-box of 400 lbs. capacity, very generous dresser space and, of course, ample provision for the dishes, cooking utensils, etc. A separate entrance to the galley from the port side is provided.

The engine, a 60 h.p. 20th century, is located just a trifle forward of amidships and this compartment is entered from a hatchway at the bridge deck. An independent generating set to charge the storage batteries is placed to starboard of the main engine, and to port is a substantial work-bench of heavy oak, five feet long and built for use. The gasoline tanks of 300 gallons' capacity are placed immediately under the bridge deck with all pipe connections exposed for instant inspection.

Kathmar II is rigged with a pole mast forward on the long fore-castle deck and has one smokestack through which the galley smoke-pipe discharges. The wide flaring plumb bow and whaleboat stern present an appearance of smartness and have more than proved their utility at the end of a season's constant cruising.

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The Most Perfect Two Cycle Motor Made
Three types — for ordinary work, heavy duty and high speed,
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a perfect finish for all woodwork, spars and ironwork
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HALL OPPOSED MARINE ENGINE
Direct from testing-room to you
The HALL OPPOSED can be run on the governor or handled by throttle without changing adjustment. No vibration, smooth, steady running, working parts easily accessible but not exposed, absolutely reliable.
Four cycle, two and four cylinder opposed, 3 to 50 H.P. FULLY GUARANTEED.
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Manufacturers of High Grade Marine Engines

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For Gasoline, Air for Whistles, Oil, Water, Mufflers, Condensers, etc. Heavy sheet iron and plate steel work of any shape desired. Galvanizing of all kinds of boat work.
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Judge an Engine and Boat By Its History

Don't buy an engine or a boat on promises.

Don't listen to talk about what the engine will do.
Find out what it has done.

Compare the actual History of the engine and boat
you thought best with that of the

ROCHESTER ENGINE AND BOATS

Find (if you can) an engine of corresponding price
whose record can equal the Rochester's.

For 12 years in every contest this engine has entered
it has proved its surprising quality.

"She seems to be proof against trouble." That's what
one racing owner says. You can't afford a faulty, "fussy"
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Find out all about the Rochester engines and boats. Send
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1910 Models, one to six cylinders, 4 to 48 H. P. Im-
mediate deliveries. Mechanical oilers. Atwater Kent
Ignition. Gasolene or kerosene.

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The New SPECIAL ERID

NEVER HAVE WE BELIEVED IT POSSIBLE TO
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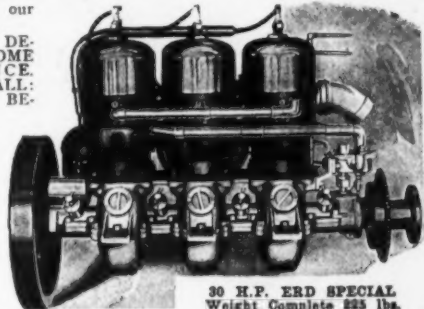
That is our Policy and that is why Erd QUALITY is spoken of Everywhere.
For 15 years the name Erd has stood for POWER and RELIABILITY,
due entirely to the most careful designing and construction.
As Mr. J. G. Erd has never designed anything but successful engines in
the past, much anticipation was felt when it became known he was to bring
forth a SPECIAL LIGHT WEIGHT HIGH SPEED MOTOR.

It is now perfected and his masterpiece

It has Surpassed our
biggest Expectations.

BEAUTIFULLY DE-
SIGN. HANDSOME
IN APPEARANCE.
WEIGHT SMALL.
POWER BEYOND BE-
LIEF and, Most
of all, RELIA-
BILITY is there,
which has charac-
terized every Erd
Motor for the past
15 years.

REMEMBER,
RELIABILITY
AS WELL AS
SPEED WINS
RACES



30 H.P. ERD SPECIAL
Weight Complete 235 lbs.
Bore 4 1/4" Stroke 4 1/4"
Manufactured in 3-4-6 Cylinders

Write to-day for our illus-
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four-cycle Motors from 3-60
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BOAT BUILDERS

Get your order in this sea-
son for a Sample Motor. Use
it as hard as you know how,
and if it does not drive your
boat faster than any other
two cycle built, same bore
and stroke, we will refund
you your money at the end
of the season.

Erd Motors have helped
to make many boats famous.
They will do the same with
yours.

A REVERSE GEAR IS THE CONNECTING LINK BETWEEN MOTOR AND MOTION

THE Motor Boat man using
JOE'S IMPROVED MAR-
INE REVERSING GEAR is al-
ways sure that a pull at the handle
will cause his propeller to start,
stop, or reverse, as desired.

He can be certain of this result
because Joe's gear is sure and
prompt acting, being built on cor-
rect principles.

It has but few parts, compactly
and scientifically designed and
constructed, and does not drag;
but transmits to the propeller the
full power and speed of the mo-
tor.

Joe's gears may be safely
thrown to full speed in either di-
rection without damage to the
gears or motor.

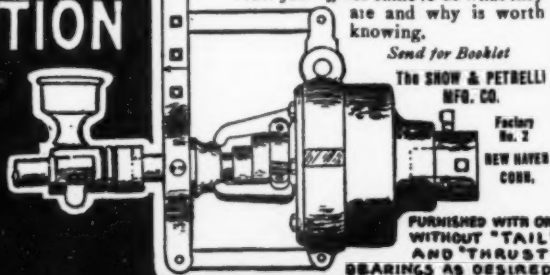
Motion is transmitted to the gears
through a powerful eccentric which
brings a uniform strain on all the gears.

The slow equalized gear motion in-
sures long life and kills all noise and
grumbling.

Joe's gears are strong, efficient, reli-
able and durable.

Investigate and compare them with
others and you will take no other make.

How Joe's gears came to be what they
are and why is worth
knowing.



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THE SHAW & PETRELLI
MFG. CO.

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No. 2

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CONN.

FURNISHED WITH OR
WITHOUT "TAIL"
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BEARINGS AS DESIRED

A Detroit Oiler is an investment

A Detroit Force Feed Oiler *insures* you against wasted
oil and a damaged engine.

It *guarantees* that your engine won't be laid up by
the many troubles that come from faulty lubrication.

And it pays big dividends in freedom from bother and
delay.

There is a Detroit Force Feed Oiler for every engine.
Made in all sizes and all numbers of feeds with pulley,
ratchet and gear drive.

Detroit Force Feed Oilers



The Detroit Oiler starts and
stops with the engine. It au-
tomatically changes its rate of feed
as the engine speed changes.

You never have to bother with
a Detroit because it remembers
for you.

Once adjusted, it never has
to be regulated. It gives you
efficient, automatic, dependable,
trouble-proof lubrication that
never requires any attention at
all.

Write today for catalog
P-64 and full infor-
mation, stating what kind of
engine you have.

DETROIT LUBRICATOR COMPANY.

DETROIT, U. S. A.

Largest manufacturers of lubricating devices in the world.

Don't Spend Your Whole Summer

building a boat, but get one of our specially constructed Hand V-Bottom Boats or "Viper" Knock Down Boats that can be put together in a few evenings by any intelligent person. Write for particulars, plans, patterns, knock downs and complete boats ready to run.

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BATH MARINE CONSTRUCTION CO.
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Polarine

The Frost and
Carbon—proof Oil



Monitor K-D Boat Frames.

500 Sizes for Open Boats and Cruisers. FREE CATALOG
MONITOR BOAT & ENG. CO., 815 Emmet St., Newark, N. J.

LUBROLEINE OILS

"MAKE MOTORS MAKE GOOD"

Write for booklet, "The Mission of Lubrolene"

FISKE BROTHERS REFINING CO.

Established 1870

NEWARK, N. J. NEW YORK PITTSBURGH, PA.



Fairbanks-Morse Marine Engines

Designed for hard work and lots of it. Distinguished for simplicity and general satisfactory service. Full h. p. guaranteed. Start easily without a crank.

Write for Catalog No. F-B-125.
Fairbanks, Morse & Co. Chicago
Wabash Ave. and Bridge St.

CHELSEA CLOCKS

Clocks for use on yachts, steamships, etc., with (patent applied for) electric attachment for operating ship's bell. Made by the largest makers in America of exclusively 8-day high grade marine, ship's bell, mantel and auto clocks. Write for price list today.

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Motor Boat Outfitters

Everything for MOTOR BOATS is fully described and illustrated in

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of Marine Hardware at the lowest prices possible for QUALITY BOAT FITTINGS. Our complete stock includes Camp Goods, Tents, Fishing Tackle, Boats, Canoes, and every need for Land and Water Sport.

We sell by Post from Coast to Coast. Prices right. Service right away.

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JONES SPRAY HOODS

Without Exception, the Finest Hoods Manufactured

Made of strong brass tubing covered with best waterproof Gov't Khaki.

Polished brass fittings. Bows work on hinges fastened to coaming.

Quickest to put up and down. Folds neatly over forward coaming. Fit perfectly because every hood is

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Builders of all kinds of Water Craft

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ANTI CRANK THE WORLDS SIMPLEST Installed Oper-
for all boats. Guaranteed. Stated by anyone.
Complete Outboard ready for Rowboat or Schooner. GUARANTEED.
TWELVE YEARS building, perfecting, success with THE ONE
TYPE. Write to Originators of VALVELESS for new "MARINE
BOOK" a liberal Educator to all, free.
LACKAMORA MFG. CO., COLUMBIA ST., NEWBURGH, N. Y.

Among the Clubs.

(Continued from page 46.)

Speed Boat Race.

	Handicap.	Elapsed.	Corrected.
Caroline II.....	20.13	0:33:15	0:15:01
Cyram.....	11.28	0:32:06	0:10:05
Zipp III.....	1.58	0:28:43	0:26:45
Elmaja II.....	3.21	0:36:51 1/2	0:33:30 1/2
Alfred II.....	Did not finish		
Rosalie, Vixen and Elk	were disqualified.		

The Maryland Motor Boat Club, Baltimore, Md., held on September 30 a race to Love Point and return which was exceptionally successful, both from the number of starters and as a means of demonstrating the seaworthiness of the boats. Of the ten entries only one boat failed to start. A strong northwest wind which went around to the north made very wet running across the head of the bay on the way out and on the return. None of the contestants withdrew, however. The race furnished much encouragement to the enthusiasts who are promoting the Baltimore-Norfolk race next year. It was won by Cayuga, owned by O. L. Motter, with Ethel B., second. The summary:

Boat and Owner.	Start.	Finish.	Elapsed Time.
Scrogie, H. B. Little.....	11:05	4:42	5:37
Belvoir, Dorton & Smith.....	11:12	5:34	6:22
Esther, Vogt, Wheeler & Voeth.....	11:15	5:33	6:18
Ethel B., Com. W. P. Bigelow.....	11:15	4:40	5:25
Neptune, M. Rosenbush.....	11:30	5:04	5:34
Cayuga, O. L. Motter.....	11:30	4:37	5:07
Hap, L. M. Sprague.....	11:45	4:46	5:01
Florence H., B. W. Harrison.....	Scratch		
Valiant, Lee S. Meyer.....	12:00	4:41	4:41
Almos, J. Mayer.....	12:00	4:53	4:53

The Riverton Yacht Club, Riverton, N. J., the oldest club on the Delaware River, held their fall regatta on Saturday, September 30th. Visiting motor boatmen from the Jersey and Pennsylvania clubs filled the harbor with boats of all sizes, and more spectators were present than have ever before congregated to watch a water event on the river. There were two classes, speed and cruiser, and there were four entries in each. In the morning the wind blew a gale but in the afternoon it moderated somewhat, leaving fair conditions. The race for cruisers over a 17 nautical mile course was won by A. W. Herr's Miny by 16 minutes 43 seconds. Zip III walked off with the first time prize among the speed boats, while Caroline II, owned by E. J. DuMee, won the race on account of her big handicap. This boat was built to take advantage of the A. P. B. A. ratings and is one of the fastest handicap boats in the country. Sand Burr II had difficulty in starting and did not really get into trim until after the second lap. The course was 20 nautical miles, three laps. Pee-Vee-Ho and V. S. C. were unable to start on account of mishaps. Shortly before the race an accident was narrowly averted when Caroline, coming up the river at full speed, passed under the stern of the commodore's yacht. Her helmsman did not see Sand Burr at the yacht's stern till almost upon her, and showed much presence of mind by swerving slightly and running into Sand Burr's painter, severing it like a knife, so that neither boat suffered any injury.

Cruisers.

Boat and Owner.	Start.	Finish.	Elapsed Time.
Miny, A. W. Herr.....	10:00:00	12:46:47	2:46:47
Waonda, R. H. Stackhouse.....	10:56:10	1:03:30	2:07:20
Eagle, G. H. Mcalley.....	10:56:33	1:05:05	2:28:32
Neptune, J. C. Stoltz.....	10:51:00	1:10:29	2:19:29

Speed Boats.

Boat and Owner.	Start.	Finish.	Elapsed Time.
Caroline II., Ed. J. Du Mee.....	3:30:00	4:24:50	54:50
Zip III., T. Hutchinson.....	4:04:46	4:52:24	47:38
W. S. Vane, Jas. Glenn.....	3:51:42	4:54:01	1:02:19
Sand Burr, A. K. and C. D. White.....	3:58:49	5:03:08	1:04:19

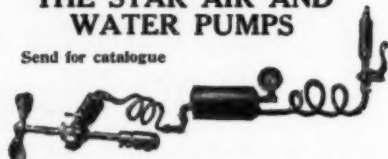
Erie Yacht Club, Erie, Pa. One of the most successful motor boat races of the season was the race for cruisers for the Wig-Wam trophy on September 16th. Seven boats started, on handicap, for the 25-mile run. Una, owned by Capt. Reichell, won the event.

Boat and Owner.	Start.	Finish.	Elapsed Time.
Una, Capt. Reichell.....	2:36:41	5:47:39	3:10:58
Eleanor, C. Nagel.....	2:41:11	5:48:15	3:07:04
Triton, C. Snyder.....	2:42:06	5:48:15	3:06:09
Vamac, C. Foster.....	2:47:20	6:07:45	3:20:25
Roamer, G. Fuchs.....	2:55:25	6:51:50	3:56:25
Anona, G. Bliss.....	3:18:58	6:01:25	2:42:27
Green Dragon, J. Curtis.....	3:30:17	5:54:45	2:24:28

The Excelsior Yacht Club, Brooklyn, N. Y., held its annual closing night on October 14, 1911. It was the twenty-second in its history. Some excellent music was provided by the entertainment committee, and dancing was enjoyed by over two hundred couples. Searchlights from the boats hauled out along the drive were used for lighting the grounds.

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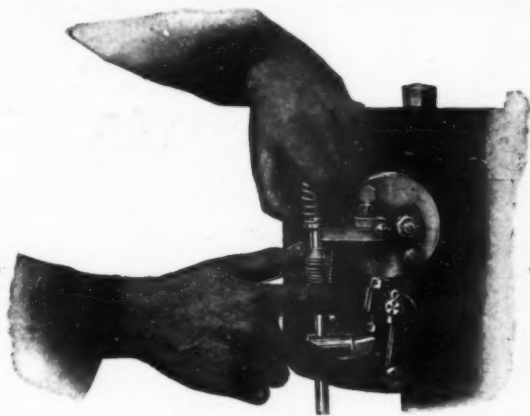
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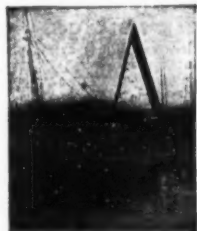
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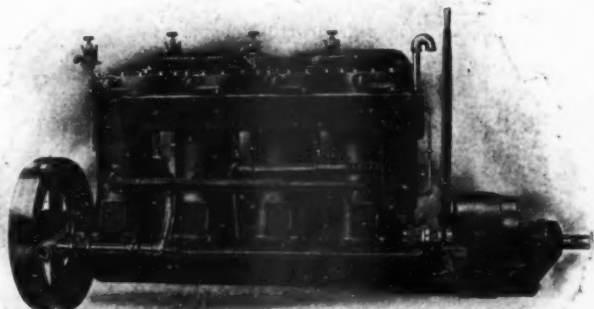
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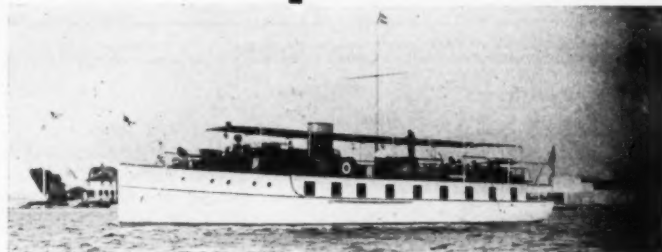


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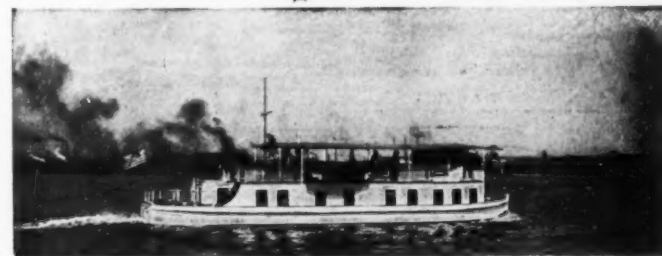
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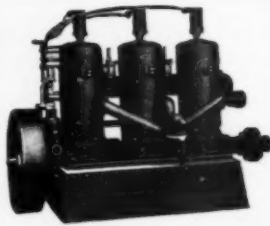
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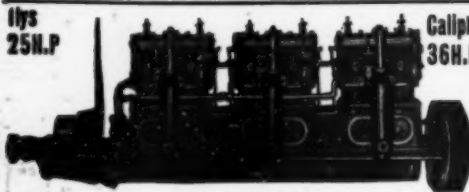
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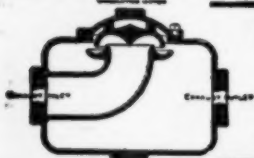
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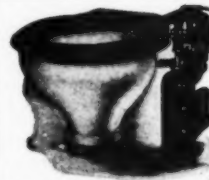
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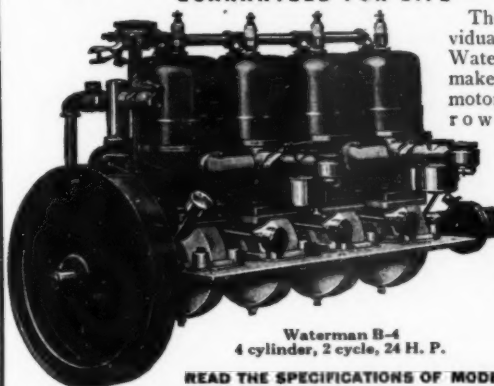
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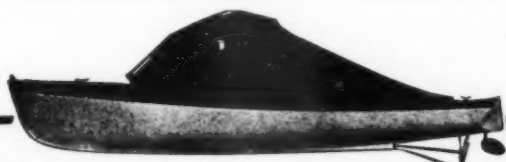
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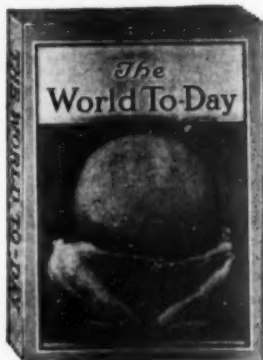
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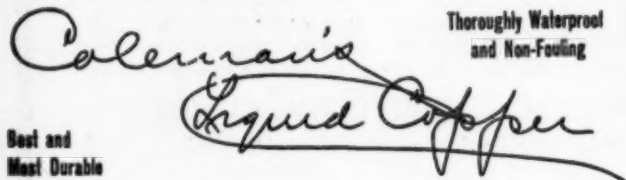
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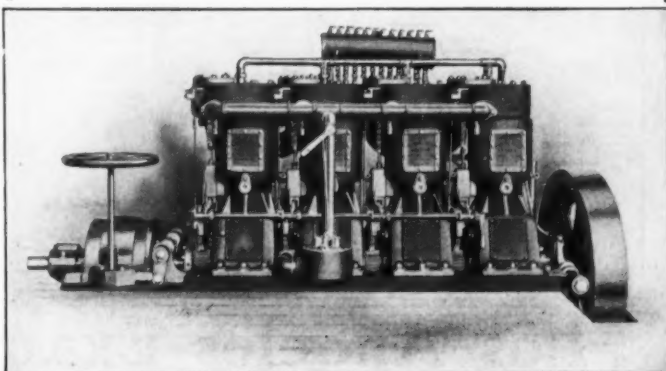
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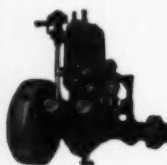
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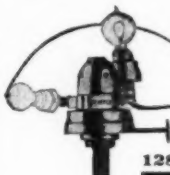
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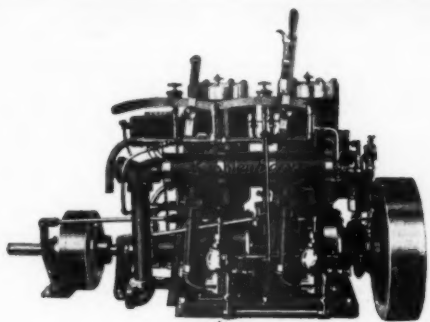
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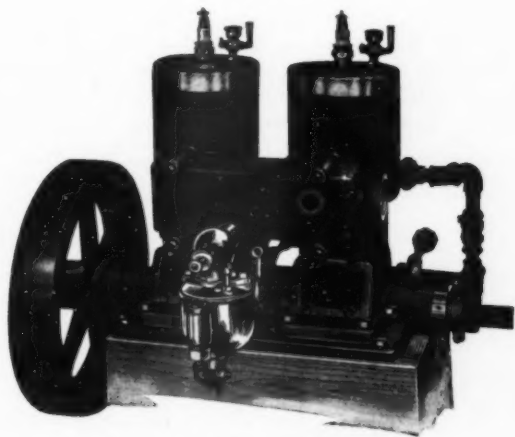
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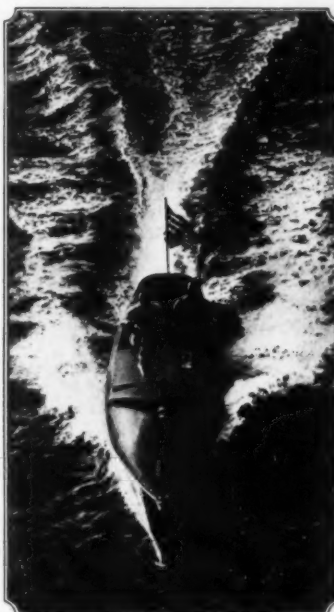
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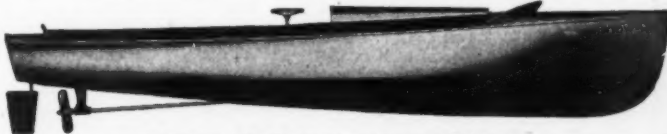
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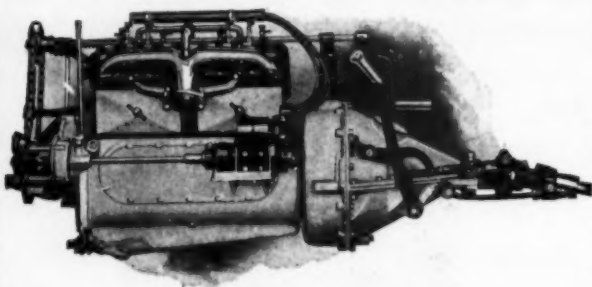
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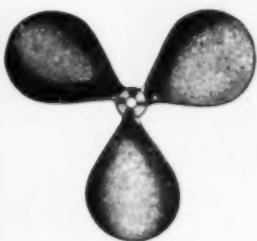
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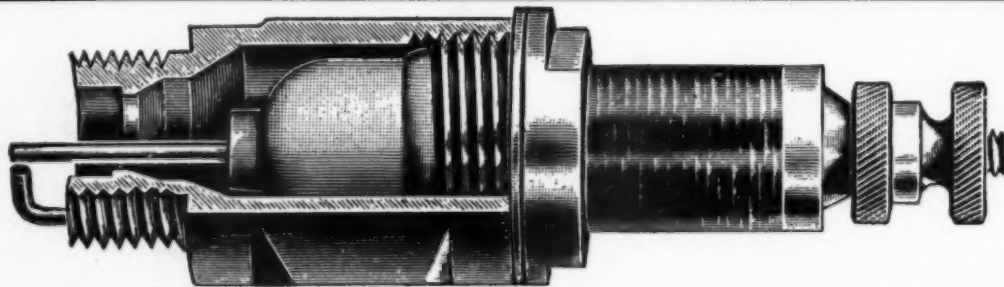
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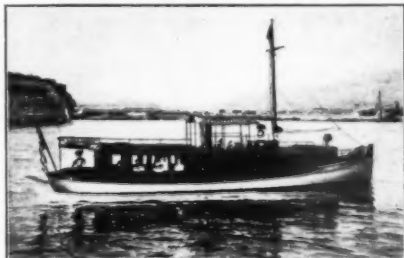
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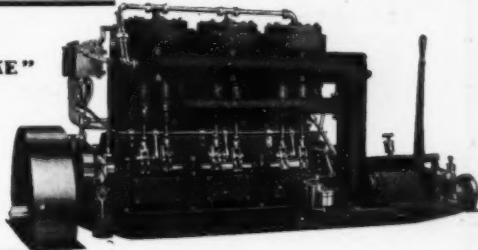
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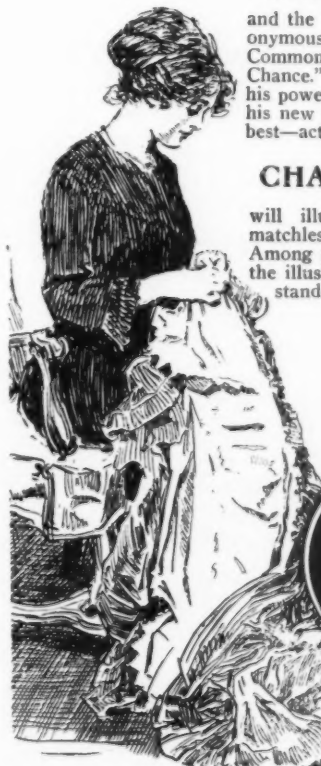
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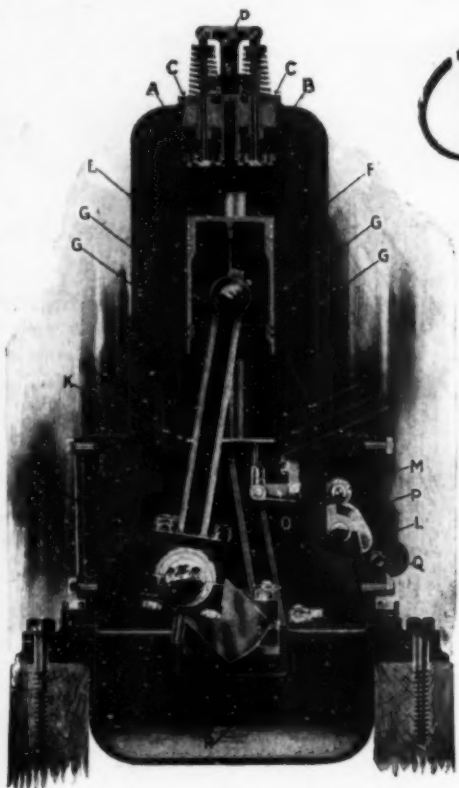
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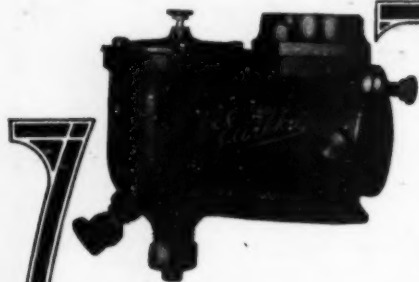
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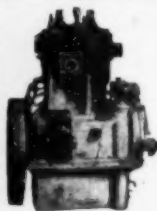
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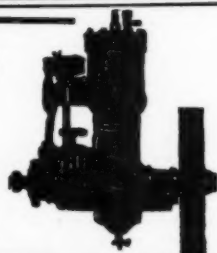


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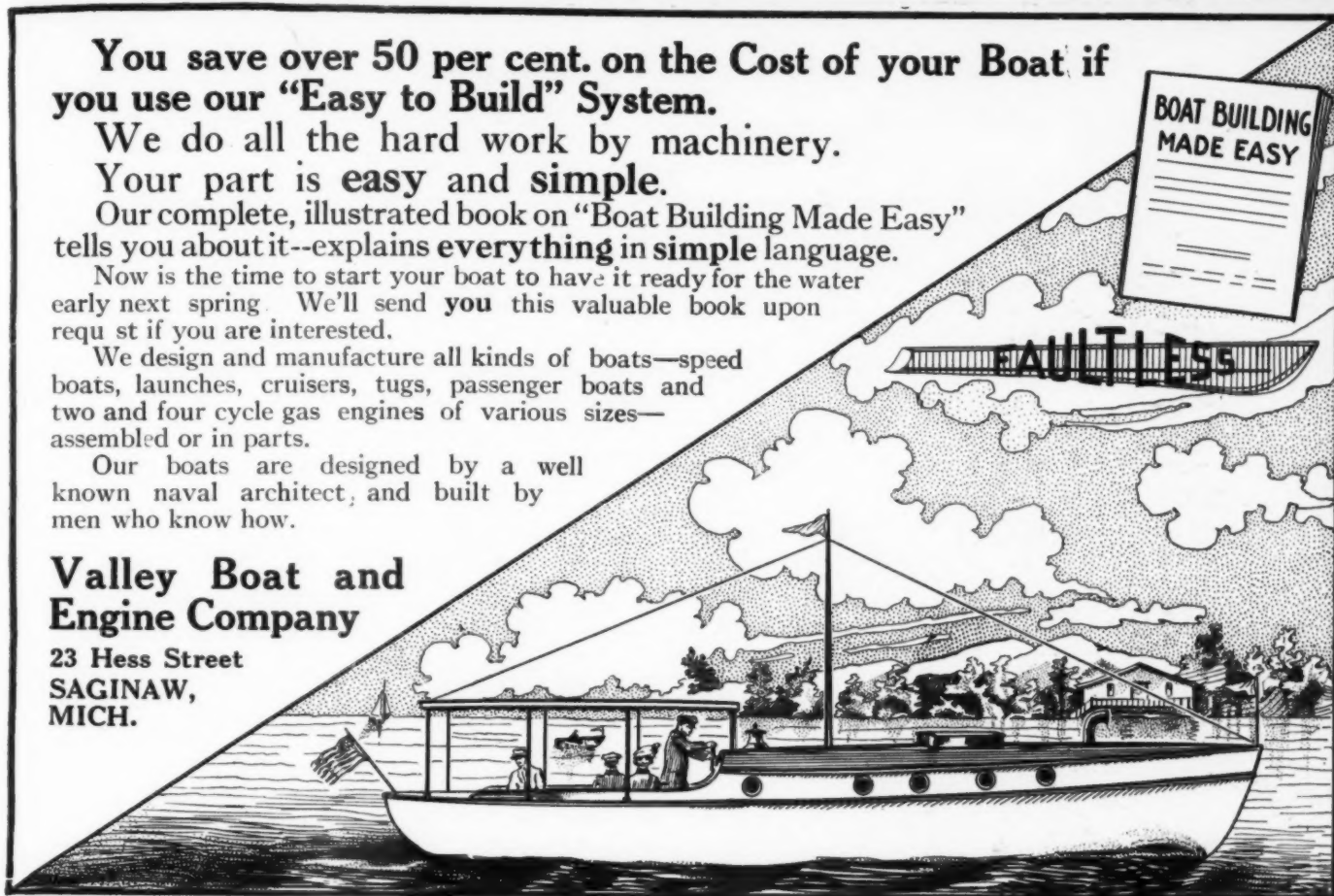
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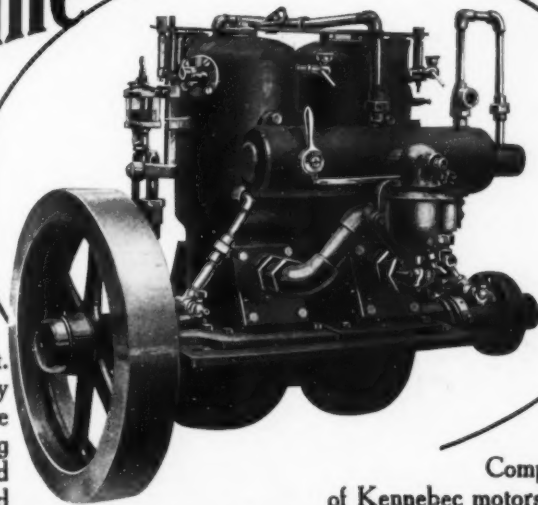


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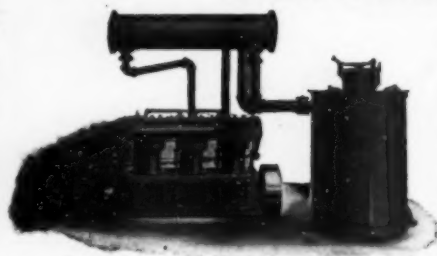
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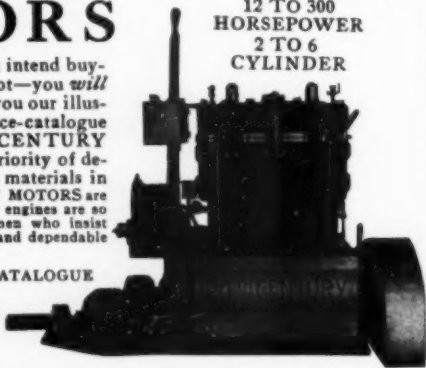
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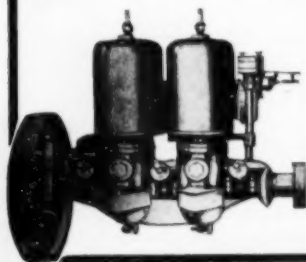
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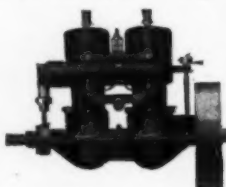
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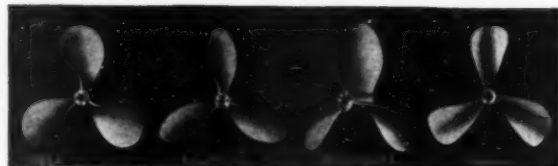
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COLUMBIAN



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Oregon Wolf Mit II Zip III Potato Bug III
Sand Burr II Missouri III Ace II Tiny Tad
Pronto III Viva Elmer L II Rocket

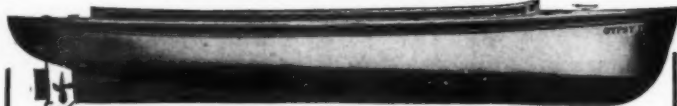
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Boats in All Stages of Construction



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You will enjoy building your own boat from frames or patterns by our method. We supply you with frames you can assemble without boring a hole or cutting a shaving. Our "NIAGARA QUALITY" frames are years ahead of all others. They are designed by the best naval architects and are perfection in every detail. Our models, in competition, both for speed and seaworthiness are considered by owners everywhere to be the best in the world. Let us show you what we can do. Your interests demand a copy of our catalogue. Send 5c. for mailing. It means money and satisfaction to you. Write us.

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for MOTOR BOATS

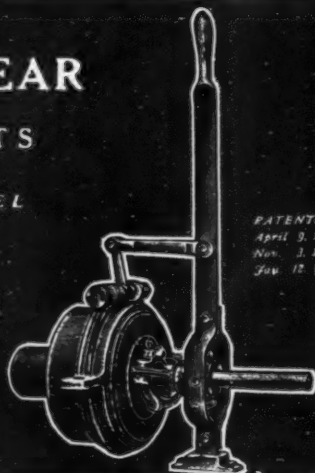
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FOUR SIZES CARRIED IN STOCK

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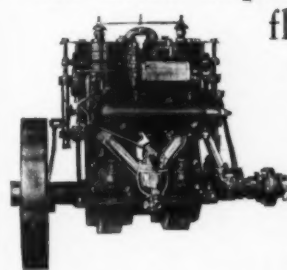
flexibility—no stalling from closed throttle to wide open—steady operation—very economical fuel consumption and absolute reliability.

This Motor has proven itself a practical working outfit and represents maximum value. We would like your order.

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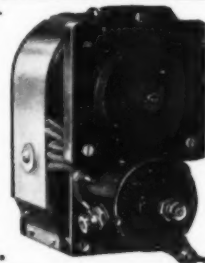
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Especially adapted for rudder chains, passageways, etc.

These chains, being bronze, cannot rust, nor will they corrode. No staining of woodwork possible.

SIZES, 3-16 inch to 5-8 inch diameter
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You'll be proud to see on your new motor. Now—Friend Motor-Boater—take

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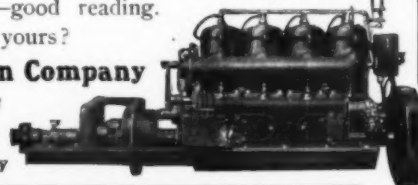
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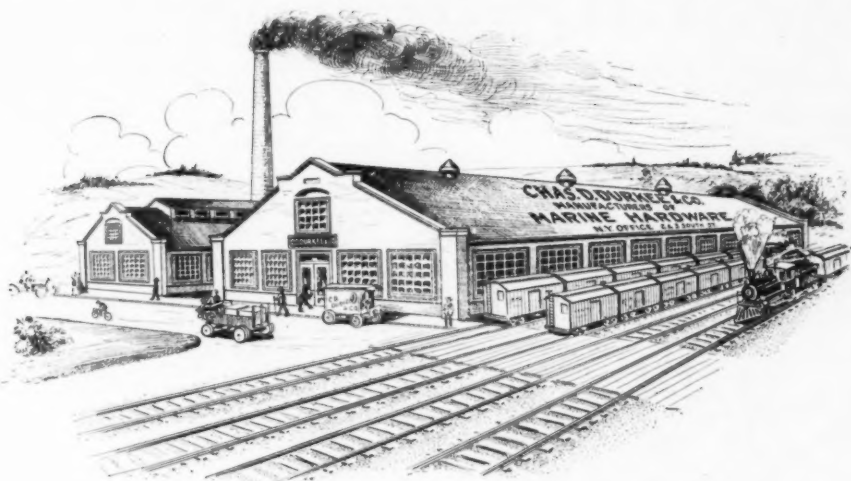
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HARDWARE FOR WET PLACES

Now under construction at Grassmere, Borough of Richmond, City of New York

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The firm of Chas. D. Durkee & Co., was incorporated in July, 1905, starting in a small way at No. 26 South Street, but very soon found it necessary to have larger quarters, and the present building at Nos. 2 and 3 South Street, was erected for them. This building, consisting of seven floors, 40x110 feet, has now proven inadequate, and a new era in the history of the Durkee Company is to be inaugurated by the establishment of a manufacturing plant, separate from its salesroom.

The stock of this corporation is held almost entirely by those who are interested either directly or indirectly in marine affairs, and dividends of 7% or better have been paid since its start, and in addition a large surplus established.

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New England and the Boston American



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The Boston Evening and Sunday AMERICAN is *THE* medium for New England. With a circulation of nearly 400,000, Evening and Sunday, its supremacy is unquestioned. The circulation of the Boston Evening AMERICAN is at least 300,000 greater than the next evening paper.

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The advertising gain of the Boston AMERICAN for 1910 over 1909 was over 4,000 Columns—the greatest gain ever made by any newspaper east of the Rocky Mountains.

And—the advertising gain of the Boston AMERICAN so far this year is nearly twice as much as the combined gain of all the other Boston newspapers having Daily and Sunday Editions.

"NOTHING SUCCEEDS
LIKE SUCCESS"—AND THE

Boston American

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1082

FEB 26 1902

190

MR WALLACE DOWNEY., SHOOTERS ISLAND. HOBOKEN..

BEST THANKS AND CONGRATULATIONS MAY SHE PROVE THE SUCCESS I

HOPE HER TO BE..

WILLIAM. I. R.

Copy Congratulations from His Imperial Majesty, Emperor of Germany to Wallace Downey, builder of Royal Yacht "Meteor" and President of the Downey Shipyard & Marine Company

USEFUL WORDS SHOULD BE OBTAINED THROUGH THE COMPANY'S OFFICES, AND NOT BY DIRECT APPLICATION TO THE SERVICE. INQUIRY RESPECTING THIS MESSAGE CAN BE ATTENDED TO WITHOUT THE PRODUCTION OF THIS PAPER.

YOU NEED A MARINE SPECIALIST WHEN YOU WANT A YACHT, LARGE OR SMALL, STEAM, SAIL OR MOTOR, CALL UPON OR ADDRESS OUR COMPANY AND YOU WILL RECEIVE THE BENEFIT OF 25 YEARS' MARINE EXPERIENCE, AND THE SAME ATTENTION AND QUALITY FURNISHED THE EMPEROR OF GERMANY AND HUNDREDS OF OTHER SATISFIED CLIENTS AND CUSTOMERS.



The Royal Yacht Meteor.

"CALL OR WRITE FOR LIST OF YACHTS FOR SALE"

DOWNEY SHIPYARD AND MARINE COMPANY

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Fits Any Engine

Absolutely prevents any possibility of injury from back kicks. Geared to suit the strength of any operator and the horsepower of any engine. Makes starting the engine easy, quick, safe and sure.

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Big Profits in our Special Dealers' Proposition

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PLATE S-20

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Pump and fittings polished and nickel-plated all over; white enameled iron base plate.....\$115.00

Pump white enamel, with nickel-plated trimmings, enameled iron base plate.. 110.00

If with mahogany seat and cover, add 2.00

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1849

A. B. SANDS & SON CO.

Largest Manufacturers in the World of
MARINE PLUMBING SPECIALTIES
22-24 Vesey St., New York, U. S. A.

1911

Oakland

IT IS SUFFICIENT

recommendation of the Oakland 20-32 H.P. and the Brushmarine 3-5 H.P. to say that they were designed by Alanson P. Brush, the famous designer of automobile motors, who has to his credit some of the most successful engines such as the famous little Brush Runabout, the single cylinder Cadillac, the Oakland and others.

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KNOX

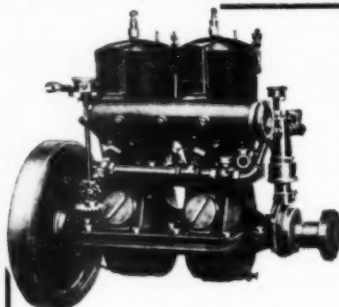
MARINE MOTORS 17 MODELS 3 To 40 H.P.

TWO CYLINDER THREE PORT 11 H.P. J.S.

You will lose money if you buy a motor before you read the Knox Catalog. Write for it today.

"The Motor that pushed the SEA BIRD across the Atlantic Ocean"

CAMDEN ANCHOR-ROCKLAND MACHINE CO., CAMDEN, ME., U. S. A.
22 Franklin St., Boston Prince William St., St. John, N. B.
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Before selecting a Marine Engine write for a "Liberty" Catalog.

IT GIVES DETAILS, prices and information which you should know. We make the following sizes: 1½ H. P., 2½ H. P., 3½ H. P., and 6½ H. P., Single Cylinder. 7-8 and 12-14 H. P. Double cylinder.

The double cylinder motors are remarkable engines on account of the power they will develop and on account of the low price at which they are sold.

Our Accessories Will Save You Money—Write for Catalog

DETROIT AUTO SPECIALTY CO.

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Don't Forget the Annual Buyer's Reference and Export Number



December Issue

The Annual Buyers' Reference and Export Number of MoToR BoatinG, published December first, will be the most complete catalog of the whole marine trade ever printed. This issue will be preserved throughout the year by every buyer because it will describe and illustrate every stock boat, accessory, part, etc., on the market.

Every maker of any article that sells to the marine trade, whether he advertises regularly in MoToR BoatinG or not, is warranted in using maximum space in December MoToR BoatinG.

Write us immediately for information regarding the special proposition offered to advertisers in connection with this issue.

MoToR BoatinG

JOS. S. HILDRETH, Adv. Mgr.

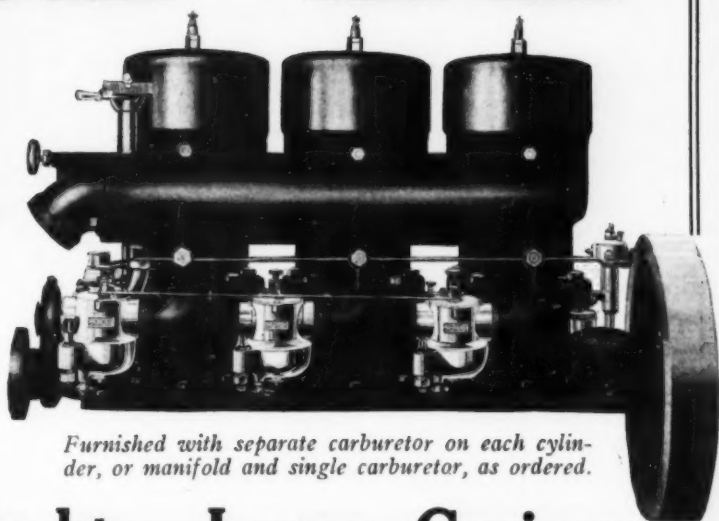
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NEW YORK

GRAY

MARINE MOTORS

We are prepared to equip your boat, whether it be large or small, with a reliable power plant—a power plant that will give satisfactory service for years to come.



Furnished with separate carburetor on each cylinder, or manifold and single carburetor, as ordered.

For Work Boats—Yachts—Large Cruisers Pleasure Boats—Speed Boats—Canoes

We want to get in touch with men who are going to equip their cruisers, yachts or heavy duty boats this fall or winter.

We want a chance to go into detail and give you full particulars about this marvelous marine motor—the Gray Model "T."

We want to tell you why this motor is entitled to your consideration.

We want to tell you of the Real guarantee that is behind every motor.

The guarantee that means something.

We can give you some mighty valuable help in selecting the right power for your boat—don't hesitate to write us at any time.

Tell us what you want—what kind of work you expect the engine to do and what kind of an outfit you are going to equip.

We in return will give you an honest statement as to the most economical outfit for you to select—the outfit that will do your work at the least possible expenditure of money—the outfit that will give the most satisfactory service under the various conditions.

The Gray Model "T"—A Marvelous Power Plant

The Model "T" is built in 1, 2 and 3 cylinder sizes from 7 to 36 H. P.

It is a combination 2 and 3 port motor. Can be operated as a 2 port motor, a 3 port motor, or a combination 2 and 3 port.

Uses kerosene or gasoline fuel. We are prepared to furnish multiple unit power plants up to 108 H. P.

Powerful—simple—quiet and smooth running. Every part designed to stand twice as much strain as you could possibly give it.

Then there is our customer's service department—one of the most important features of our organization.

Every purchaser of a Gray Motor is carefully looked after—we don't forget you as soon as we get your order.

It is a fact that we take more interest in owners of Gray Motors than we do in prospective customers—we see to it that every purchaser of a Gray Motor gets satisfactory service.

That's the way we have built up our enormous business—by treating our customers fairly.

That's why hundreds of men are to-day owning their third, fourth or fifth Gray Motor.

They selected a small motor at first—they soon wanted a larger boat and more power—the excellent working of the little motor had already made the sale of a larger sized Gray an easy matter.

—And that's the biggest end of our business today—filling orders for satisfied customers who want larger Motors.

Work Boat Special

We have an 8 H. P. Model "T" for work boats that is a wonder.

Has a crank shaft heavy enough for a 12 H. P.—a chunky, heavily built motor that is right in its element when doing heavy work.

Built especially for heavy duty service—that's all we claim for it—in fishing boats—ferry boats—towing or at any kind of work it has no equal. Ask about it.

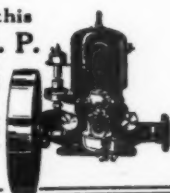
A postal or a letter will bring you our big catalog and any other information on marine gasoline engines that you may care to ask for.

Write today—you might as well get the benefit of our experience—it will put you under no obligations.

\$60 for this
3 H. P.

MARINE MOTOR
WITH COMPLETE
OUTFIT

Guaranteed to develop 4 H. P. Material and workmanship absolutely guaranteed.



Gray Motor Co.

1122 U. S. Motors Building

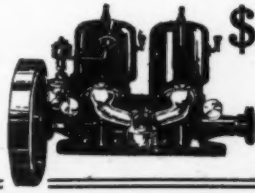
Detroit,

Michigan

\$188 for this
12 H. P.

MARINE MOTOR
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OUTFIT

9 H. P. of the same type for \$164



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T & M MARINE ENGINES

are built for more than ordinary service. Rough seas will not strain or hamper them. Users when purchasing a new engine of different capacity almost invariably specify the T. & M.

AN ENGINE TO DEPEND UPON

Speedy, reliable, consistent—a type and size for every craft up to 65 ft. Light, medium and heavy duty—2 H. P. and up. 1-2-3 and 4 cylinder—2 cycle—2 port type.

Write for catalog and name of nearest dealer.

TERMAAT & MONAHAN CO.

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Agencies in all principal cities

THE SHAW PROPELLER

Guarantees Greater Speed

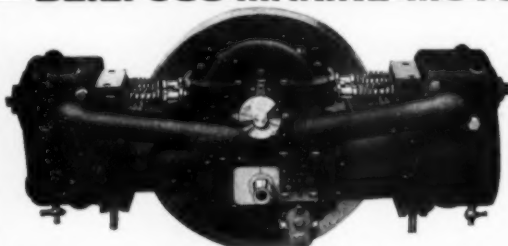
than any wheel on same number of revolutions.
No cavitation under any speed and no vibration.
Money refunded if above claims are not proven.

SHAW PROPELLER CO.,

156 STATE STREET

BOSTON, MASS.

BEILFUSS MARINE MOTORS



Four Cycle
Two Cyl-
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Accessible
Easy to
Start.

We have thousands of unsolicited testimonials to prove that Beilfuss Motors run with less vibration, greater economy of gasoline and greater reliability than the vertical two cycle type. Occupy less room than any other motor. Can be placed under seat of any boat. Don't buy any motor without investigating the Beilfuss.

Write for circulars.

BEILFUSS MOTOR CO., 704 Saginaw St. E., Lansing, Mich.

Bridgeport Standard

(MITCHELL'S)

Non-Fouling Enamel Paint

**THE BEST PAINT
FOR BOAT BOTTOMS**

Write for booklet giving further details

THE BRIDGEPORT WOOD FINISHING CO.

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NEW YORK

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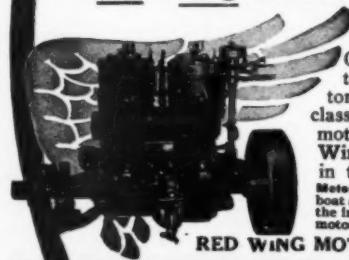
BOSTON

"If You Want to Move

When You Throw On the Switch, Install a Red Wing"

is the advice of one of our customers to everyone owning or about to purchase a motor boat. If you want a motor that "is very simple to control," "works like a charm," "runs fast on very little oil and always runs," "runs very smooth" (a few quotations from the hundreds of letters on file), is short a trouble-proof engine—investigate the

Red Wing Standard 2 Cycle Motor



shown here. It is made with 1, 2 and 3 cylinders—3 to 15 H. P. Other Red Wings, including motors for high speed work and motors up to 80 H. P., and also the classy up-to-date reliable Red Wing motor boats (equipped with Red Wing Motors) are fully described in the beautiful Red Wing Free Motor Boat Book. Don't buy a motor or motor boat anywhere until you get this book and read the information on page 20. It's important to motor boat enthusiasts. Write to Dept. C 1.

RED WING MOTOR CO., Red Wing, Minn.

Universal Boat Fittings



WIZARD COMBINATION LIGHT.

This is the highest grade Fresnel Glass Lamp made for Class 1. Has a screen 4 inches in length, which is easily removed when not in use.

A complete line of marine hardware
Low prices—high grade—quick service

Complete set Galv. Lamps for Class 1.....	\$2.60
Complete set Galv. Lamps for Class 2.....	5.10
Complete set Galv. Lamps for Class 3.....	7.50
12-inch Pol. Brass Steering Wheel.....	1.35
No. 1 Brass Bilge Pumps.....	1.35
Pol. Brass Pump Whistle.....	3.25
Pol. Brass two-tone Horn.....	1.45
8-inch Brass Bell.....	1.25
Ammeters.....	.89
Volt-ammeters.....	1.25

Write now for complete catalog
with special discount sheet,
and free delivery offer

Representatives for Bantam Anti-Friction Co., Pyke Automatic Boat Drainer,
Hercules Electric Co., etc.

Universal Motor Boat Supply Co.
Atlantic Highlands, New Jersey



UNIVERSAL STERN LIGHT.

with hinged bottom for Class 1 and 2.

HOW WE SERVE YOU

- 1st. We will build you the best boat for the money, supply you with dinghys, anchor buoys, etc.
- 2nd. We will store your boat in our enclosed yard, guarded by a watchman day and night.
- 3rd. We can offer you a choice of the best second hand boats on the market and take your present craft in part payment on a new or second hand craft.

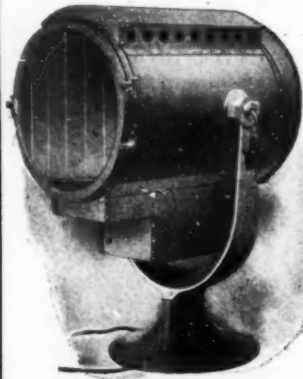
The Bayonne Launch Co.

East 36th St. and New York Bay Bayonne, N. J.

Take C. R. R. of N. J. to 33rd Street Station

Electric Searchlights

Lighting Plants



Direct Connected Generating Sets—for power boats, yachts and launches. Searchlights in all sizes from 7" diameter to 60" diameter.

Our searchlights are the recognized standard of the world, are used by all the leading ship and launch building companies.

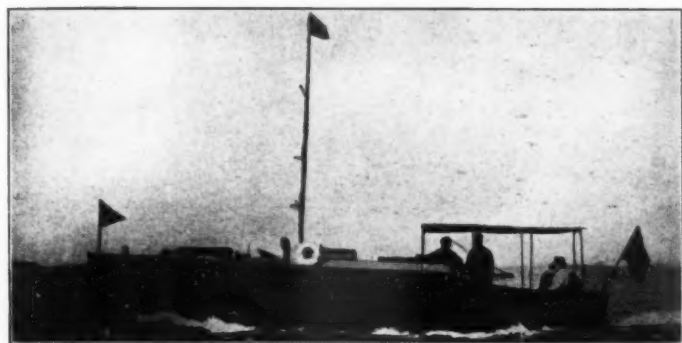
Send for catalog "A."

The Carlisle & Finch Co.

261 East Clifton Avenue

CINCINNATI, OHIO

35 FOOT CRUISER



R E M O H
SPEED 13.5

30 FOOT CRUISER



PLAYMATE
SPEED 10.

Arthur P. Homer

Naval Architect

156 STATE STREET
BOSTON, MASS.

Motor Boats

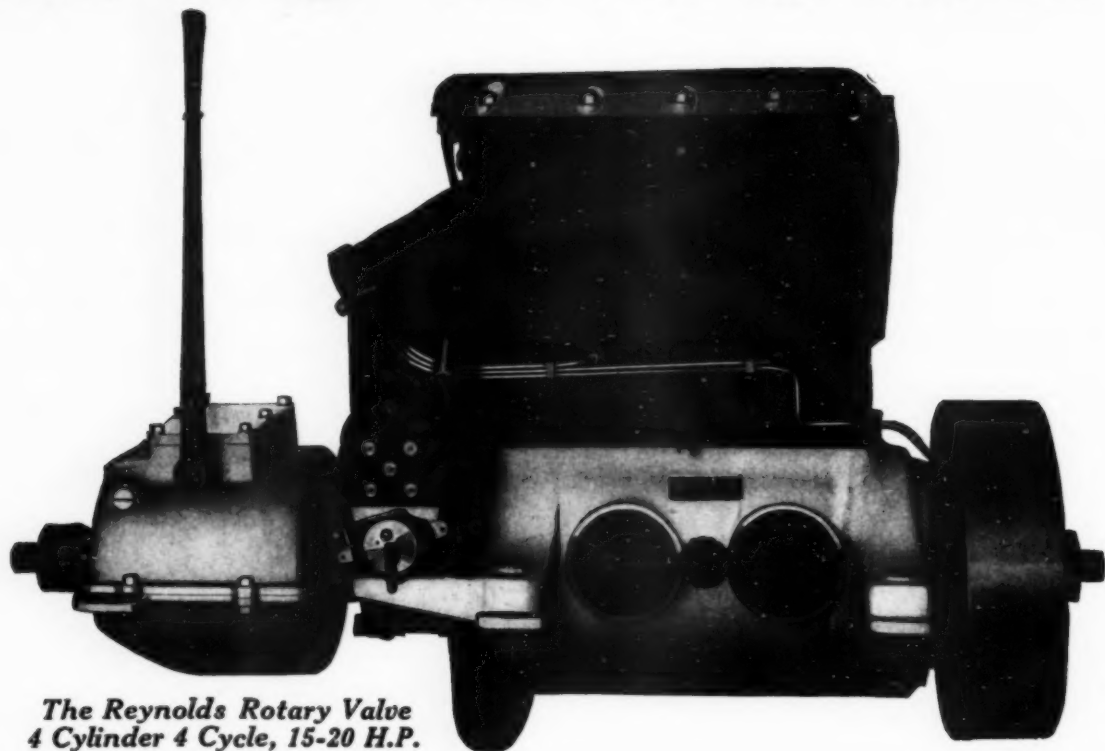
50 FOOT FAST CRUISER



GEE WHIZZ IV
SPEED 18.5

REYNOLDS

ROTARY ⦿ VALVE ⦿ MOTORS



*The Reynolds Rotary Valve
4 Cylinder 4 Cycle, 15-20 H.P.*

ANNOUNCEMENT

THE Reynolds Rotary Valve Four Cycle Marine Motor has gone through the season of 1911 with an absolutely perfect score.

Every motor we have sent out is working perfectly in the hands of a "Reynolds" enthusiast.

This is the exceedingly gratifying result of the three and a half years of thorough preparatory work which preceded the placing of this new type on the market.

Their unqualified success has decided us to undertake the production of these motors on a greatly increased scale. Naturally our manufacturing cost will be correspondingly reduced, and we are in position to announce a cut in price, which must surely interest deeply every man who is looking for an extremely high grade motor at a moderate price.

Our present 15-20 H. P. motors have been selling, complete, with magneto, reverse gear and tool equipment, at \$500.00. Taking effect immediately, the price on these motors is reduced to \$375.00 with our splendid standard of workmanship and materials maintained at the same high point.

It is conceded on every hand that the days of the "poppet valve" are numbered—Something simpler, quieter and free from care and adjustments has got to come.

The Reynolds Rotary Valve Four Cycle is now a thoroughly proven success. It employs only a little over one-third as many parts as the average poppet valve four cycle, has no reciprocating parts other than the pistons and connecting rods—and not a spring of any kind in its construction.

Give us an idea of your power requirements and let us tell you what we can do for you.

REYNOLDS MOTOR CO., 200 Hillger Avenue, DETROIT



AMERICAN

Turn Your Rowboat
Into a Motor
Launch for **\$45.00**

YOU can do it easily
with a 2 horse-power
American Detroit
Marine Motor—the low-
est priced, simplest,
strongest, most dur-
able, most de-
pendable
marine
engine
built

**American Detroit Marine
Engines are made in
the following sizes:**

Single Cylinder		Double Cylinder	
2 h. p.	\$ 45.00	8 h. p.	\$158.00
4 "	65.00	14 "	215.00
6 "	93.00	20 "	295.00
8 "	123.00		

The prices include complete
outfit of everything nec-
essary to install
and operate
them.

Although the
name is new to you, this
engine has been made for over
15 years.

Our output has heretofore been sold through jobbers
under their name; now we are going to advertise and sell
it direct, and you will get the benefit of dealing directly
with the factory.

**Let us send you an American Detroit Engine
on a 30 days' free trial.**

If you are not entirely satisfied with it in every respect, return it and we will
refund your money.

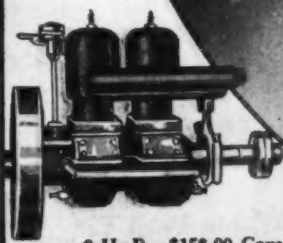
These engines represent the very highest development in a 2-cycle design.
Can fit out any work or pleasure boat up to forty feet long. They are extremely eco-
nomical, have few moving parts, few wearing surfaces, so that it is almost impossible
to wear them out; they will outlast hull after hull.

They are extremely easy to operate—no experience necessary.

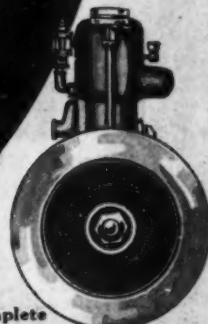
Good Agents Wanted in Every Locality

We have just published a Book on "Marine Engines,
Their Construction and Operation." Send for it.

American Engine Company
104 Boston St., Detroit, Michigan
U. S. A.



4 H. P.—\$158.00 Complete



2 H. P.—\$45.00 Complete

Don't Forget
Annual Buyers' Reference
and Export Number



Regular December Issue

The buyer's impression of the manufacturer is formed entirely from his advertising—from its appearance, its size and its persistence.

The manufacturer who can please those customers near by can just as well please and sell the hundreds and thousands of possible customers farther away—if he will only reach out and tell them about his product in a way they will remember when they buy.

The possibility of making an impression is dependent upon reaching them at the right time, and the depth and quality of the impression depends upon the buyer's confidence in the medium of advertising.

The Annual Buyer's Reference and Export Number of MoToR BoatinG, published in December, is the right medium at the right time. For any manufacturer to be without representation in this issue is like neglecting to answer his name at roll-call or refusing an A-1 rating in Bradstreet.

Every issue of MoToR BoatinG has been proven a profitable advertising investment, but the December issue is the nearest of any to securing a whole year's advertising with one insertion. This issue is actually a Buyers' Reference Number—a complete catalog of the marine industry.

Because of its special character, The Buyers' Reference Number is the one issue of the year which is not only studied from cover to cover when first received, but is actually put away to be referred to when the purchase of anything new is under consideration. In this way its advertising continues to be effective long after the issue is succeeded by others.

Every advertiser is warranted in using maximum space in this issue. Although its unusual and extra advertising value is unquestioned, the advertising rates will remain the same as for regular issues. Beyond this we have a special proposition in conjunction with this issue which we will be glad to outline upon request.

MANUFACTURERS: *Whether you advertise in MoToR BoatinG (or any other publication) regularly or not, do not neglect to save a place on your advertising appropriation for the December issue of MoToR BoatinG. In the meantime write for information regarding the special proposition offered in connection with this number. Address*

MoToR BoatinG

JOS. S. HILDRETH, Advertising Manager,

381 Fourth Ave. New York City



Eagle Engines

afford striking proof of a remarkable fact—that a marine engine of the very highest grade, in design, materials, workmanship, finish and equipment, can be successfully made and sold at a reasonable competitive price.

It is only our exceptional manufacturing and distributing facilities that now make this fact possible. For years we have been building the best two-cycle engines possible to build, and we have always sold all we could make, demanding high prices for them. Now we are able to offer you the same engines, improved and refined, to be better than ever and backed by 12 years' experience in building fine engines with the additional economies we have effected in the various departments of manufacture.

Eagle engines are made in 15 models of the semi-speed and heavy duty types, one, two, three and four cylinders, and ranging from $1\frac{1}{2}$ to 25 H. P.—a model specially adapted to every class of service, wherever it is possible or desirable to use an engine of the two-cycle type. No matter what kind of service or style of boat you have in mind, don't select any engine until you have the Eagle catalog and have visited the nearest Eagle dealer.

Write for our handsome catalog today.

THE EAGLE COMPANY

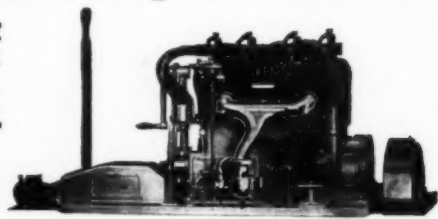
98 WARREN STREET :: :: NEWARK, N. J.

DISTRIBUTORS

Boston, Mass., A. P. Homer, 156 State Street; Baltimore, Md., Loane Kilts Engineering Co., 300 So. Hanover St.; Houston, Texas, The Barden Electric & Machinery Co., 109 Main St.; Jacksonville, Fla., National Boat & Engine Co., 230 West Bay St.; Minneapolis, Minn., United Motor Supply Co., 917 First Ave.; S.: Mobile, Ala., Marine Supply Company, 14 St. Michael St.; New Orleans, La., Stauffer, Eshleman & Co., Ltd., 511 Canal St.; New York City, Bruns-Kimball & Co., Inc., 124 Liberty St.; Norfolk, Va., Bell Motor Company; Philadelphia, Pa., W. E. Gochensaur, 631 Arch St.; San Francisco, Cal., California Gas Engine & Motor Boat Co., 78 Clementina St.; Savannah, Ga., The Osborn-Marlow Co., 129 Congress St., W.; Seattle, Wash., Astoria Iron Works, Pier 4.

If It's Within the Power of an Engine, the Loew-Victor Can Do It.

Your
Engine Requirements
Must Be Peculiar If
You Do Not Find Them Antici-
ipated in the Loew-Victor Line



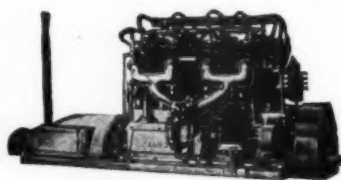
4 Cyl. Special. 20-30 H. P.

ANY test to which you can reasonably subject an engine from 6 h. p. to 60 h. p. will demonstrate the superiority of the LOEW-VICTOR.

The motors illustrated on this page are typical of the LOEW LINE. All are equipped with two separate systems of ignition, operating on two separate sets of spark plugs, and deriving current from two separate sources, battery and magneto. Magneto, reverse gear, carbureter, automatic oiling system and air compressor are included.

The upper cut shows our 4-cylinder "Special." This motor develops 20-30 h. p. and is especially designed for speed boats and run-a-bouts. Can be operated at 1100 or 1200 r. p. m. For a gentleman's run-a-bout it stands in a class entirely by itself with no equal on the market. It is a speed engine of the highest type.

The illustration in the center of the page shows our 4-cylinder engine of a more rugged



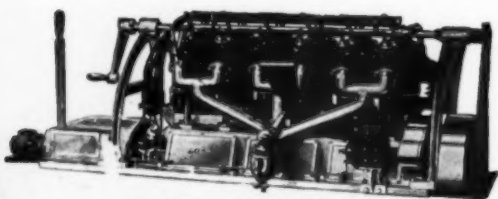
4 Cyl. 24-40 H. P.

type, developing 24-40 h. p. This engine is suitable for cruisers up to 40 ft., operating at medium speed. It may, however, be equipped with aluminum crank case and it will then prove just the engine you want for speed boats up to 35 feet. A thoroughly dependable, staple rig.

The lower cut is our 6-cylinder engine of 36-60 h. p. for fast run-a-bout and speed boat work. It will run any number of hours at 1000 to 1200 r. p. m. and is absolutely dependable. Either aluminum or iron crank case owing to the service demanded.

We also build the same type of engine as these in ONE, TWO and THREE cylinders, making most desirable motors for fishing dorys, open pleasure boats or work boats.

Our catalogue tells all about the "whys and wherefores" of engine construction, and contains much information of value to anyone interested in motors. Send for it and get our description and prices.

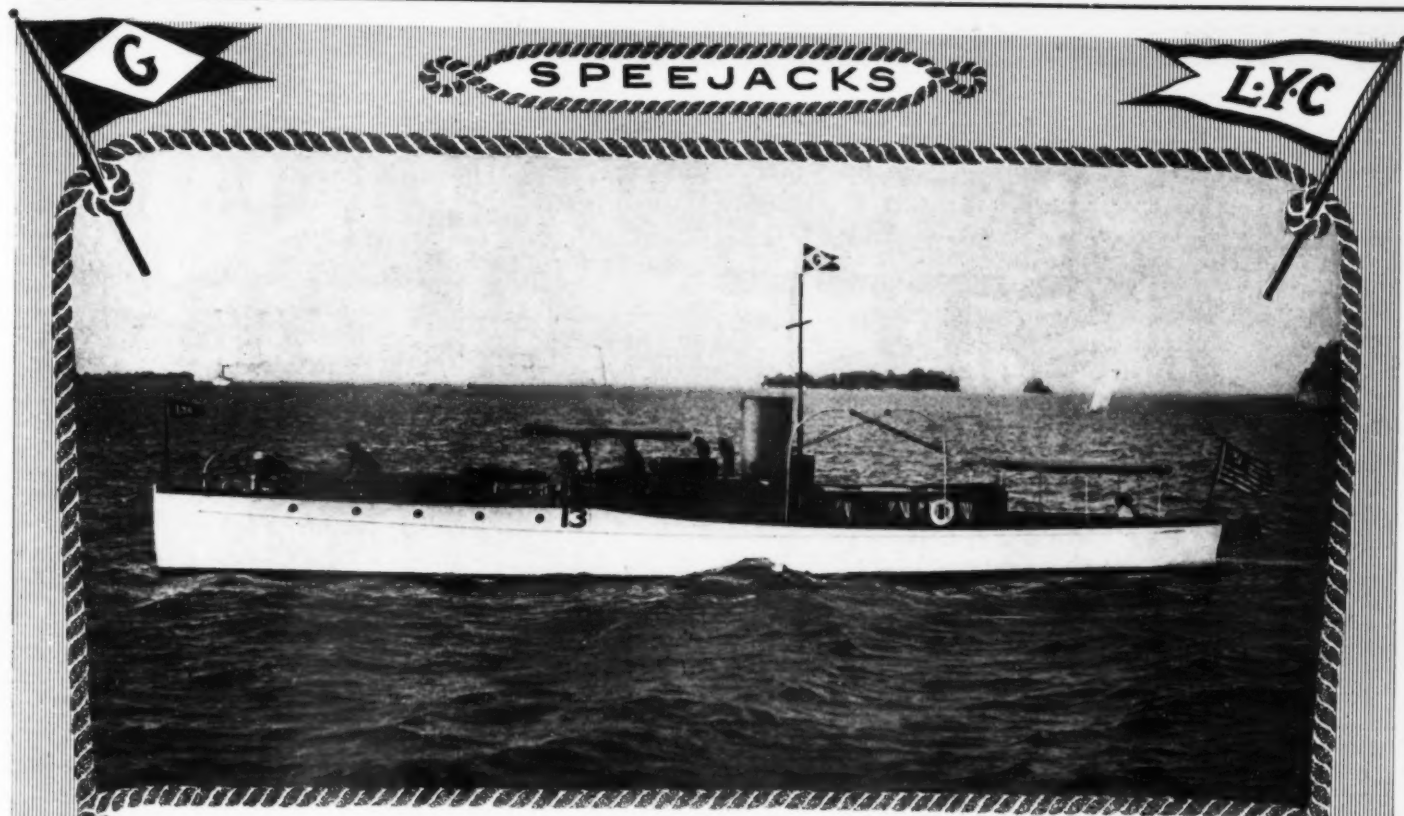


6 Cyl. 36-60 H. P.

Loew Manufacturing Co.

1907 MADISON AVE.

CLEVELAND - - - - OHIO.



77 ft. Twin Screw Motor Yacht, equipped with two 6 cylinder 200 H. P.
"Speedway" Motors

SEABURY DESIGN AND CONSTRUCTION

The Gas Engine & Power Co.,
Morris Heights, N. Y.

Sept. 14, 1911.

Gentlemen:—

I acknowledge receipt of your letter of the 12th, asking me what success I have had with my yacht Speejacks, in which you installed two of your 6-cylinder, 8" x 8" engines.

It gives me great pleasure to say that I was very skeptical regarding the success that I would have with them, when you delivered these engines to me last April, but to date, I can justly say, that I don't believe there are any engines in the world that could have served my purpose, or, in fact, any man's purpose, better than these engines have. The boat ran all the way from New York to Cleveland, as you probably know, via Hudson River, Lake Champlain, St. Lawrence River, through all the canals and Lake Ontario, also Lake Erie. After the boat arrived in Cleveland, it has been in continued use, running anywhere from seven hours to twenty-four hours continually, and I have not as yet touched any part of the machinery, except to clean the magnetos and the spark plugs.

She has won every race in which she has been entered, and during one 10-mile race, which included 8 turns, we averaged 22.8 miles an hour.

I have run the boat all through the Northern Lakes, Georgian Bay, and in fact, every navigable water along the Great Lakes, and they have given me absolutely no trouble, and I cannot in this short letter, express to you how pleased I am with the wonderful performance that the Speejacks has made.

If there is anything further I can give you, will be most pleased to do so.

Yours very truly,

(Signed) A. Y. GOWEN.

Gas Engine & Power Co. and Charles L. Seabury & Co.
CONSOLIDATED

MORRIS HEIGHTS, NEW YORK CITY

DESIGNERS AND
BUILDERS OF

High Class Yachts and Launches
The "Speedway" Gasolene Marine Motor

SEND FOR CATALOG

THE JOHNSON MARINE REVERSE GEAR

A VANADIUM STEEL GEAR FOR 1912

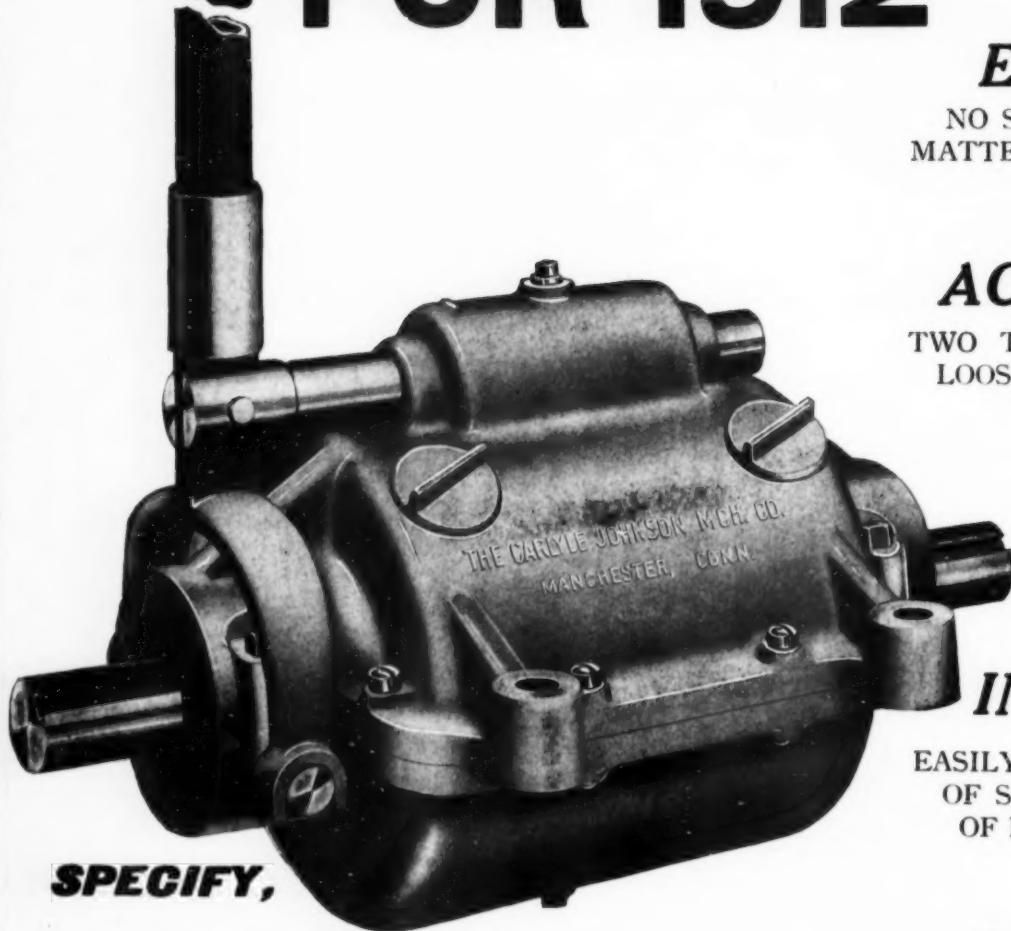
ENCASED

NO SAND OR FOREIGN
MATTER CAN GET INTO THE
BEARINGS

BUT

ACCESSIBLE

TWO THUMB SCREWS TO
LOOSEN TO LUBRICATE
OR ADJUST



INSTALLED

EASILY, IN THE MINIMUM
OF SPACE ON ACCOUNT
OF ITS COMPACTNESS

AND

OPERATES

WITH A SMOOTH, POSITIVE
ACTION, WITHOUT
GRATING, NOISE, OR JAR

GUARANTEED

FOR ONE YEAR, IF
PROPERLY INSTALLED
AND OPERATED

SPECIFY,

JOHNSON AND QUALITY

AS A PART OF YOUR 1912 EQUIPMENT

THE GEAR YOU WILL EVENTUALLY USE

PLACE YOUR ORDERS NOW FOR LATER DELIVERY

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

"We have run Sand Burr II over 2000 miles at World's Record Speed without a particle of engine trouble."

A. K. & C. D. White, Atlantic City, N. J.

Winner International Speed Trophy at Huntington Bay.

Winner 75-mile National long-distance open Championship.

Winner of 1-mile 20-foot Championship U. S.

Winner of 30-mile 20-foot Championship U. S.

Winner of 60-mile 20-foot Championship U. S.

Winner Delaware River Championship, Wilmington.

Winner 20-foot free-for-all Championship W. P. B. A., Peoria.

Winner 26-foot free-for-all Championship W. P. B. A., Peoria.

Winner 32-foot free-for-all Championship W. P. B. A., Peoria.

Winner second in 40-foot free-for-all Championship, Peoria.

Winner 20-foot Championship of Great Lakes, Detroit.

Winner 12-mile free-for-all Dupont Trophy, Cambridge.

Winner Southern Championship Dupont Trophy, Cambridge.

Winner 12-mile handicap and Dupont Trophy, Cambridge.

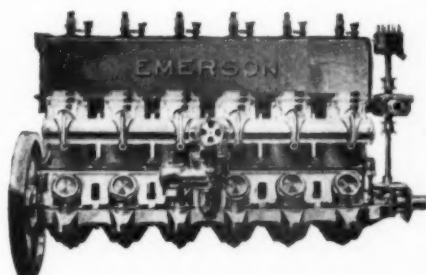


SAND BURR II, THE BOAT

Winner Atlantic City Championship and trophy.

Winner Altons Harbor Yacht Club Championship Trophy.

Holder of world's record for 20-foot boats in competition.



100 H. P. 325 lb. engine, 6 cylinders
60-70 H. P. 225 lb. engine, 4 cylinders

Write for Catalogue "S"

The Emerson Engine Company, Inc.

Alexandria, Virginia

MADE BY GUNMAKERS

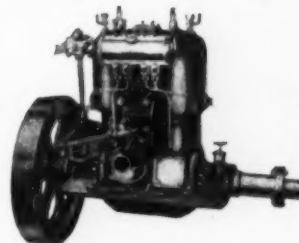
16-20 H. P.

FOR 30 DAYS ONLY
NO DISCOUNT

GOES LIKE A BULLET

\$200.00

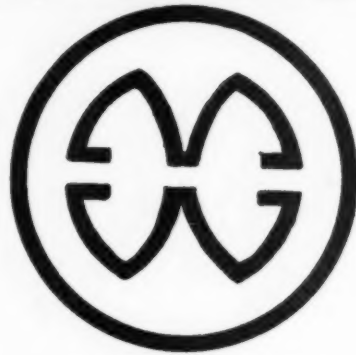
We are catering to, and are getting, the highest grade, highest powered, most critical engine trade in America. To do this we employ a corps of skilled mechanics, who demand, and can get, a wage that would make their employment impracticable in an engine factory devoted to "commercial" engine building and nothing else. Most of these men are gunmakers who have spent years in the government gun shops. It has taken years to get this skilled force together and to keep them intact for the rush season, we make the two-cylinder engines during the duller period. This enables the customer to get an engine made by this skilled force instead of investing in a motor that is made by the cheaper labor that strictly "commercial" engine building demands. The price is no greater than the commercial article. Write for catalogue "B."



THE EMERSON ENGINE COMPANY, Inc.

ALEXANDRIA, VIRGINIA

[J. R. WESTERFIELD, 1737 Broadway, (Buick Bldg.) New York Representative



TIME IS MONEY-NOW

At this time of the year the lowest prices are obtainable and the best men are available in the shipyards. In any industry where the work is not steady throughout the year the most valuable and expert men are carried over during the dull season, while the force is augmented with less experienced labor in the rush seasons. If you order now you will secure the exclusive attention of the best craftsmen.

It is a fact that builders are now making attractive concessions in order to close contracts immediately and make a small profit instead of a loss on their overhead charges for the dull season. If you wish to get the benefit of these concessions you must do so at once. Your saving should equal the fee of a competent naval architect.

During the past two years I have designed more motor boats than any other architect, and many of these were repeat orders for former customers. The degree of satisfaction I have given to the owners of these boats is the most valuable asset of my business. I will gladly refer you to any of these owners.

I work solely in the interest of the boat owner and am paid by him alone, so that my ability to purchase closely and to insure the fulfillment of the contract under construction is never abrogated.

Write me today telling of your requirements and I will promptly submit sketches and ideas without obligation to you. Do not delay it a single day if there is any possibility of your building this year.

MORRIS M. WHITAKER

NAVAL ARCHITECT

1 MADISON AVE.

NEW YORK. U.S.A.

Telephone, 2008 Gramercy

DESIGNER OF

Aloha,	Cito,	Ida,	Lynn II,	Senga,
Amrita,	Dhila,	Inevitable,	Macon,	Silver Heels,
Audaciter,	Dreadnaught,	Jacqueline,	Madelaine,	Soduska,
Benitez,	Elithro,	Jess,	Mariada,	Tallahassee,
Berkshire,	Estelle,	Kelpie II,	Martha,	The Oak,
Betty II,	Florence I,	Kim,	Meb,	Titania,
Blue Bird,	Florence II,	Kittrois,	Mollie,	Tramp,
Blue Streak,	Gracelda,	Kitcinque,	Oberon,	Valeda,
Buccaneer,	Hesperia,	Kitsix,	Prowler II,	Weepoose II,
Bunk III,	H. M. T.,	Laura H.,	Quest,	Ziczack II,
Caroline,	Hurry,	Lorelei,	Seldomin,	and many others.

The Roper Wheel
Makes Maneuvering a Pleasure
Reduced in Price
25%.

WE are glad to be able to inform the public as well as the trade, that the very large demand for the Roper Propeller during the past year has caused us to so increase and perfect our manufacturing facilities that we are now able to secure a satisfactory profit and yet reduce the price on our entire line, on October 1st, approximately 25%.

We desire to affirm in this connection that our goods will not be cheapened to offset this reduction but on the other hand we guarantee that every propeller we manufacture will be fully up to our former high standard, and that those now being made are superior in several minor essentials to those we have previously turned out.

No person owning a motor boat can any longer afford **not** to have his boat equipped with a Roper Wheel.

It affords a degree of control impossible with any other device. Its exclusive advantages are so apparent that all who see it in action enthuse over it.

Send for illustrated booklet that gives full particulars.

C. F. ROPER & COMPANY
HOPEDALE, MASS.



Don't wait until tomorrow to let us send you the **BUFFALO** book. A post card will do it.

Are You Interested In Engine Efficiency?

WE want you to judge **BUFFALO** engines by what they can do **IN THE BOAT**. Be guided by the advice of men who are running them.

All we ask is that you will make a fair-minded investigation before you decide the engine question.

The builders of **BUFFALOS** do not seek to sell you simply an **ENGINE** of certain horsepower, weight and speed. What they offer you is **UNFAILING POWER FOR YOUR BOAT**, be it work boat, speed boat, launch or cruiser.

"The Engine of Constant Service" ←

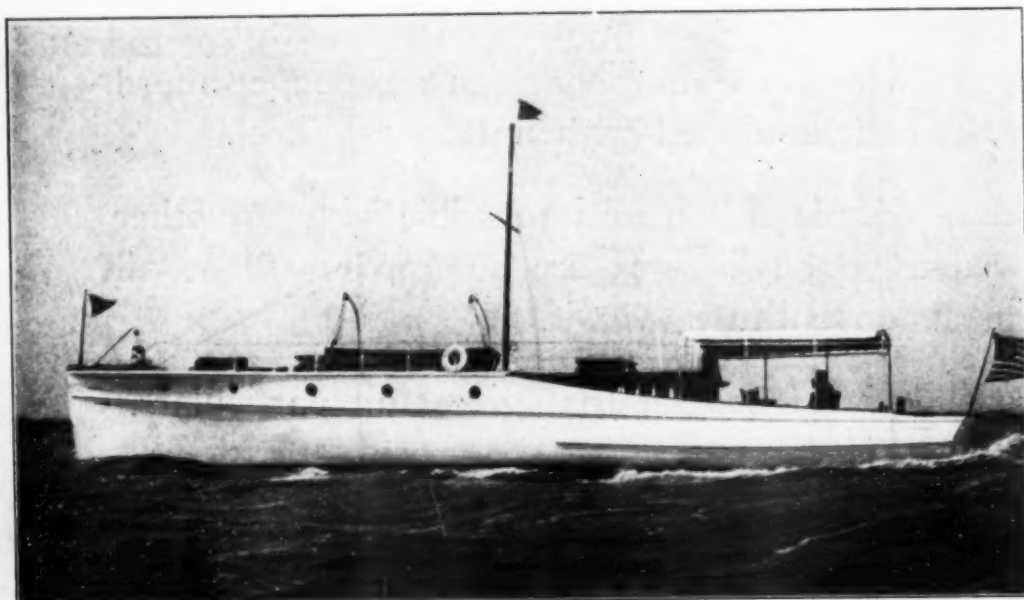
☐ In the recent Scripps Reliability Cruise **THREE** of the four boats that finished with perfect scores were powered with **BUFFALO** engines. They stood eight days of cruising without needing even an adjustment.

☐ "Corsair," winner of the Pacific International Power Boat Association Perpetual Challenge Cup is powered with a 24 HP. **BUFFALO** heavy duty. She covered the 232-mile course—Vancouver to Victoria via Seattle—in 21 hours, 31 minutes and 30 seconds.

BUFFALO GASOLINE MOTOR CO., 1204-16 Niagara St.
BUFFALO, N. Y.

The L A M B

The Motor That Is Guaranteed As Long As You May Own It



WEEPOOSE, owned by Mr. Chas. S. Thorne, of New York City, designed by Morris M. Whittaker. The dimensions are:—Length over-all, 60 feet; Beam, 12 feet; Draft, 3 feet 6 inches. Her motor is 60 H. P. six cylinder heavy duty Lamb. Speed 12 miles per hour.

IT is a wonderfully smooth and quiet running motor. It is very powerful, absolutely reliable, and its range of control is nothing less than marvelous.

The Lamb line includes a motor suitable for virtually every size and type of boat.

Send for our latest catalog

Lamb Boat & Engine Co.
CLINTON, IOWA

Members Nat'l Assn.
Engine and Boat Mfrs.

Lamb Engine Co. of New York
30 CHURCH STREET
Eastern and Foreign Distributors

51815

202

11
x

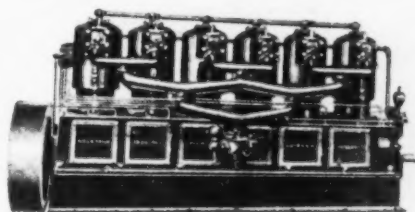
ANDERSON

Get-At-A-Bil-It

Our 3, 4 and 6 cylinder engines have large hand ports enabling you to Get At the parts easily.

This ACCESSIBILITY is at once evident and is heartily commended by every owner.

Another one of the many reasons why you should get our Engine Book before you buy any engine at any price. Get it. Write

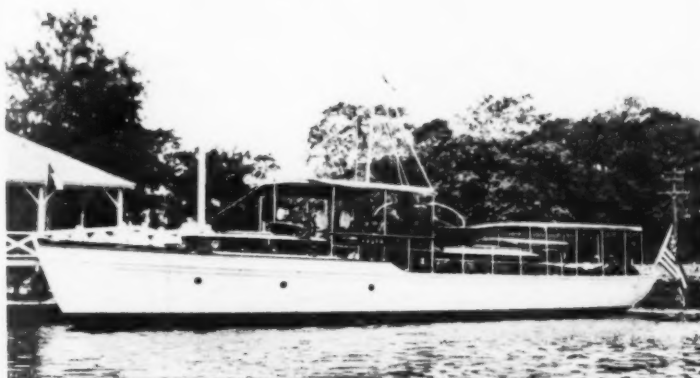


ANDERSON ENGINE CO.

::

SHELBYVILLE, ILL.

MATTHEWS
CRAFT



80' x 12' CRUISER ARDEA. 50 H. P. MOTOR.
SPEED 12 MILES PER HOUR. LAUNCHED JULY, 1911

MATTHEWS
CRAFT

Every Order Must Make Good

Ask Any Owner

The above boat was built for and under the supervision of Mr. Geo. A. Anthony, Chief Engineer of the Quartermaster's Office, War Department, Washington, D. C., and his satisfaction is expressed in the following letter:

WAR DEPARTMENT
Office of the Quartermaster General.
WASHINGTON, Aug. 14, 1911.

The Matthews Boat Company, Port Clinton, Ohio.

Gentlemen:—Having just returned from another week of most enjoyable cruising in New England waters aboard the "ARDEA," which was completed at your works last June, I am pleased to take this opportunity to notify you of the satisfaction which the entire family have thus far secured from the general excellence, sea-worthiness, speed and fine performance of the craft, under all conditions. In addition to our being much pleased with your careful selection of materials, beautiful figured mahogany, high grade of workmanship, attention to details and quality of finish throughout, it has been most gratifying to hear the comments of other yachtsmen and builders who have carefully looked the boat over while we were en route East at Lake Erie ports, on the Erie Canal, or at Albany and New York, as well as since arrival on Narragansett Bay.

The steady, constant and very satisfactory operation of her big six-cylinder engine throughout the several hundreds of miles the boat has been driven, has given us absolute confidence in her motor equipment, and this in combination

Matthews craft make good wherever they are found. ASK ANY OWNER.

with splendid sea-going qualities, dryness, speed, ease and steadiness of action, leaves nothing to be desired.

The boat and engine handle perfectly from the wheelman's position on the bridge and it is a decided pleasure to take the wheel of such a craft, knowing that any desired maneuvers among a fleet, or crowded anchorage, or at dock can be most easily and quickly accomplished single handed.

Your motto, "Ask any Owner," is a very good one from all I have seen and heard from numerous owners of MATTHEWS CRAFT.

The "ARDEA" is the fifth 60-footer built by you under my supervision, and in every case the best of satisfaction has been secured in every respect, the materials, workmanship, design, finish, etc., being exceptionally fine in each boat, and reflecting much credit on your company as their builders.

I shall be pleased to recommend your work to anyone desirous of securing a first-class craft and you are authorized to refer any prospective buyers to me if you so desire.

(Signed) GEO. A. ANTHONY, Marine Engineer.

Q. M. G. O., War Department.

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I take great pleasure in writing you the enjoyment and satisfaction I have had with my cruiser "Caroline" since using one of your 25-40 HP. Sterling engines during the past two years.

My boat is 50' over all, 11' beam, drawing 3', and will make 11 miles an hour continuously. The engine has yet to make a miss, and as my boat is in commission the year around, I feel more than pleased with her record.

Another point I cannot help but speak of is the starting quality of the engine as I think it is the easiest starting engine I ever saw and I have owned quite a number. All I ever do is to turn her over once, throw down my starting lever, then throw in the switch and she is off every time. I use the "Caroline" for outside work and this is where one is at the mercy of the engine and I can assure you my 25 Sterling is one of my least fears as she is always on the job.

Yours truly,

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